1p~28p(DS990)- NO GB 12/2/04 10:11 Page 2

SAMSUNG

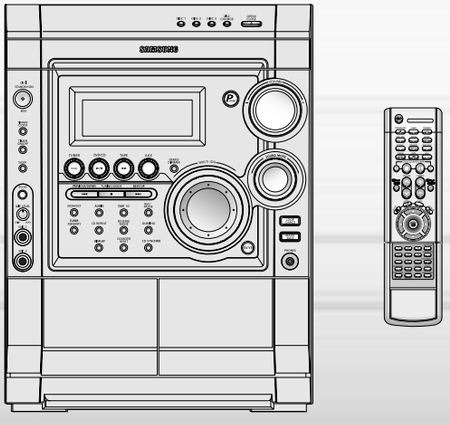
3 DVD MINI COMPONENT SYSTEM

DVD/VCD/CD/MP3-CD/CD-R/RW PLAYBACK

THIS APPLIANCE IS MANUFACTURED BY:

MAX-DS990

Instruction Manual



SAMSUNG ELECTRONICS

AH68-01607K

Safety Warnings

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUCT
LUOKAN 1 LASER LAITE
KLASS 1 LASER APPARAT
PRODUCTO LASER CLASE 1

CAUTION
RISK OF ELECTRIC SHOCK.
DO NOT OPEN

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE REAR COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.

CLASS 1 LASER PRODUCT

This Compact Disc player is classified as a CLASS 1 LASER product.

Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION-INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED, AVOID EXPOSURE TO BEAM.

This symbol indicates that dangerous voltage which can cause electric shock is present inside this unit.

This symbol alerts you to important operating and maintenance instructions accompanying the unit.

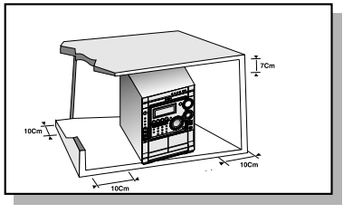
WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

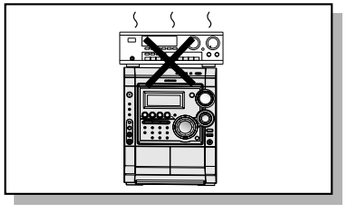
CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

(Saudi Arabian Standards Organisation)

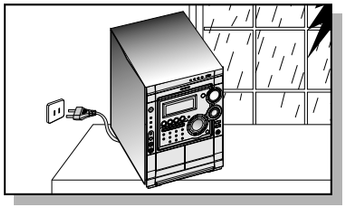
THIS APPLIANCE IS FITTED WITH 220V SASO APPROVED PLUG.THE CUSTOMER IS ENTITLED TO A FREE SASO APPROVED 127V PLUG FROM THE LOCAL DEALER.

Precautions

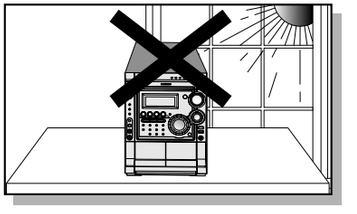




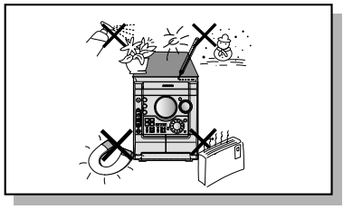
Ensure that the AC power supply in your house complies with the identification sticker located on the back of your player. Install your player horizontally, on a suitable base (furniture), with enough space around it for ventilation (3~4inches). Make sure the ventilation slots are not covered. Do not stack anything on top of the player. Do not place the player on amplifiers or other equipment which may become hot. Before moving the player, ensure the disc tray is empty. This player is designed for continuous use. Switching off the DVD player to the stand-by mode does not disconnect the electrical supply. In order to disconnect the player completely from the power supply, remove the main plug from the wall outlet, especially when left unused for a long period of time.



During thunderstorms, disconnect AC main plug from the wall outlet.
Voltage peaks due to lightning could damage the unit.



Do not expose the unit to direct sunlight or other heat sources.
This could lead to overheating and malfunction of the unit.

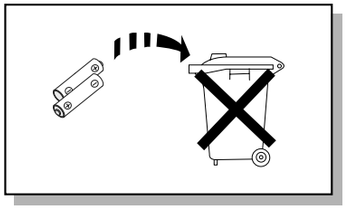


Protect the player from moisture(i.e. vases) , and excess heat(e.g.fireplace) or equipment creating strong magnetic or electric fields (i.e.speakers...). Disconnect the power cable from the AC supply if the player malfunctions. Your player is not intended for industrial use.

Use of this product is for personal use only.

Condensation may occur if your player or disc have been stored in cold temperatures.

If transporting the player during the winter, wait approximately 2 hours until the unit has reached room temperature before using.



The battery used with this product contain chemicals that are harmful to the environment.

Do not dispose of batteries in the general household trash.

Features

Multi-Disc Playback & AM/FM Tuner, TAPE

The MAX-DS990combines the convenience of multi-disc playback capability, including DVD-VEDIO, DVD-AUDIO,CD, MP3-CD, CD-R, CD-RW,VCD,DivX,JPEG and DVD-R/RW, with a sophisticated AM/FM tuner, TAPE, all in a single player.

TV Screen Saver Function

The MAX-DS990 automatically brightens and darkens the brightness of the TV screen after 3 minutes in the stop mode.
The MAX-DS990 automatically switches itself into the power saving mode after 20 minutes in the screen saver mode.

Power Saving Function

The MAX-DS990 automatically shuts itself off after 20 minutes in the stop mode.

Customized TV Screen Display

The MAX-DS990 allows you to select your favorite image during JPEG, VCD/DVD playback and set it as your background wallpaper.

DVD (Digital Versatile Disc) offers fantastic audio and video, thanks to Dolby Digital surround sound and MPEG-2 video compression technology. Now you can enjoy these realistic effects in the home, as if you were in a movie theater or concert hall.

DVD players and the discs are coded by region. These regional codes must match in order for the disc to play. If the codes do not match, the disc will not play.
The Region Number for this player is given on the rear panel of the player.
(Your DVD player will only play DVDs that are labeled with identical region codes.)

Copy Protection

- **Many DVD discs are encoded with copy protection. Because of this, you should only connect your DVD player directly to your TV, not to a VCR. Connecting to a VCR results in a distorted picture from copy-protected DVD discs.**
- This product incorporates copyright protection technology that is protected by methods claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Contents

PREPARATION
Safety Warnings 1
Precautions 2
Features 3
Description 5

CONNECTIONS
Connecting the Speakers 9
Connecting to a TV 11
P.SCAN(Progressive Scan) Function 12
Connecting External Components 13
Connecting the FM,AM and SW(option) Antennas 14
Setting the Clock 15

OPERATION
Disc Playback 16
Bonus Group/Navigating pages 18
DivX Playback 19
Displaying Disc Information 21
Fast/Slow Playback 22
Skipping Scenes/Songs 23
Angle Function 24
Repeat Playback 25
A-B Repeat playback 27
Zoom Function 28
Selecting Audio/Subtitle Language 29
Moving Directly to a Scene/Song 30
JPEG File Playback 31
Using Disc Menu 33
Using the Title Menu 34

SETUP
Setting the Language 35
Setting TV Screen type 37
Setting Parental Controls (Rating Level) 39
Setting the Password 40
Setting the Wallpaper 41
DVD Playback Mode 43
AV SYNC Setup 44
Setting the Speaker Mode 45
Setting the Test Tone 46
Setting the Delay time 47
Setting the Audio Quality 49
Setting the DRC (Dynamic Range Compression) 51
Dolby Pro Logic I I Mode 53
Dolby Pro Logic I I Effect 54

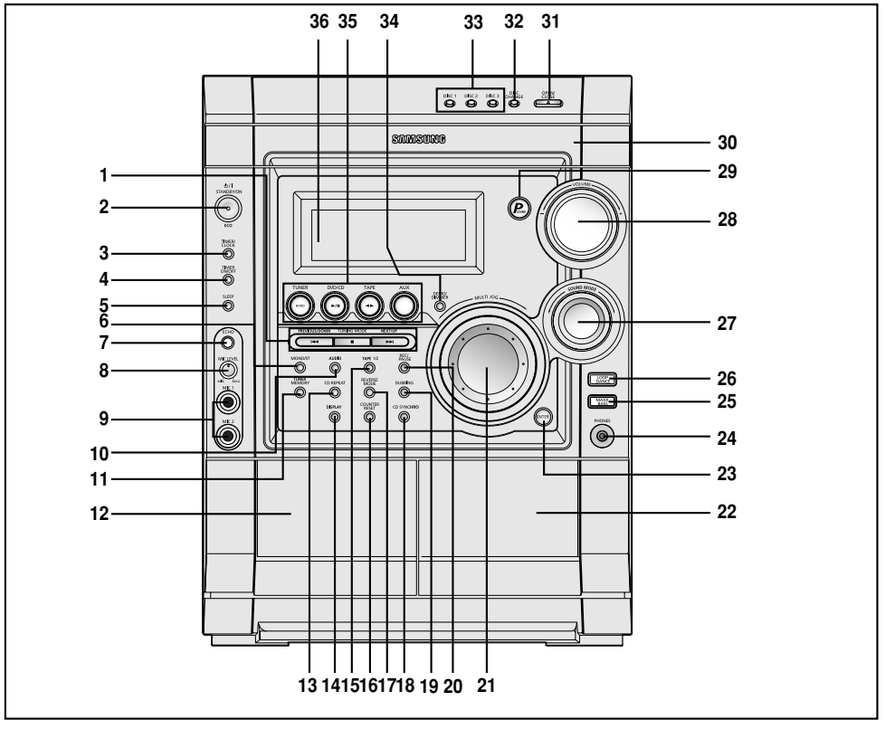
RADIO OPERATION
Listening to Radio 55
Presetting Stations 56

TAPE DECK
Listening to a Cassette 57

MISCELLANEOUS
Recording a Compact Disc 60
Recording a Radio Program 62
Timer Function 63
Canceling the Timer 64
P.SOUND/SOUND MODE Function 65
Sleep Timer Function / Mute Function 66
DEMO Function / DIMMER Function/ECO Function 67
MAXX BASS LEVEL Function/SUB WOOFER LEVEL Function 68
Connecting Headphones/Microphone(option) 69
Cautions on Handling and Storing Discs 70
Before Calling for Service 71
Notes on Discs 73
Notes on Terminology 74
Specifications 75

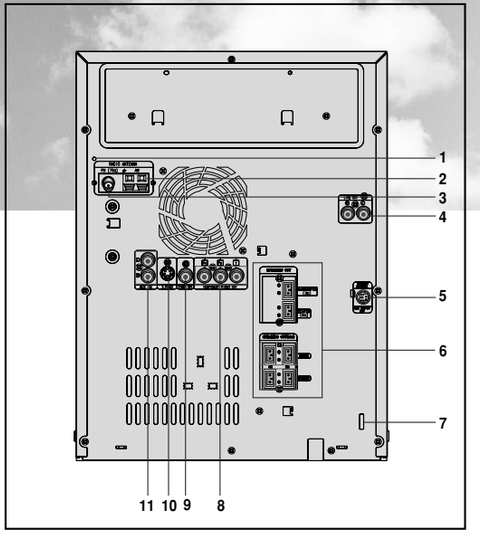
Description

—Front Panel—



1. Search Function buttons Tuning Mode or Stop button
2. STANDBY/ON/ECO
3. Timer/Clock
4. Timer On/Off
5. Sleep
6. FM Mono/Stereo
7. Echo
8. MIC Level
9. MIC1,MIC2
10. Audio
11. Tuner Memory
12. Cassette Deck 1
13. CD Repeat
14. Display
15. Tape 1/2
16. Tape Counter Reset
17. Tape Reverse Mode
18. CD Synchro Recording
19. Tape Normal Speed Dubbing
20. Record/Pause (PAL/NTSC)
21. Multi Jog
22. Cassette Deck 2
23. Enter
24. Headphone Jack Connector
25. MAXX Bass
26. Loop Dance
27. Sound Mode
28. Volume
29. Power Sound
30. Compact Disc Compartment
31. Open/Close
32. Disc Change
33. Disc Selection buttons
34. Demo/Dimmer
35. Function Selection buttons
36. Window Display

—Rear Panel—



1. SW Antenna Connector (Option)
2. AM Antenna Connectors
3. FM Antenna Connector
4. LINE OUT
5. Sub woofer Control Jack
6. 5.1 Channel Speaker Output Terminals
7. Voltage Selector (Option)
8. Component Video Output Connectors
   Connect a TV with component vide input jacks to these jacks.
9. Video Output Connector
   Connect the TV's video input jacks (VIDEO IN) to the VIDEO OUT connector.
10. S-Video Output Connector
    If the TV is equipped with an S-Video input connector (S-VIDEO IN), connect it to the player's S-Video output jack.
11. AUX-In

Accessories

Remote Control

Video Cable

Audio Cable

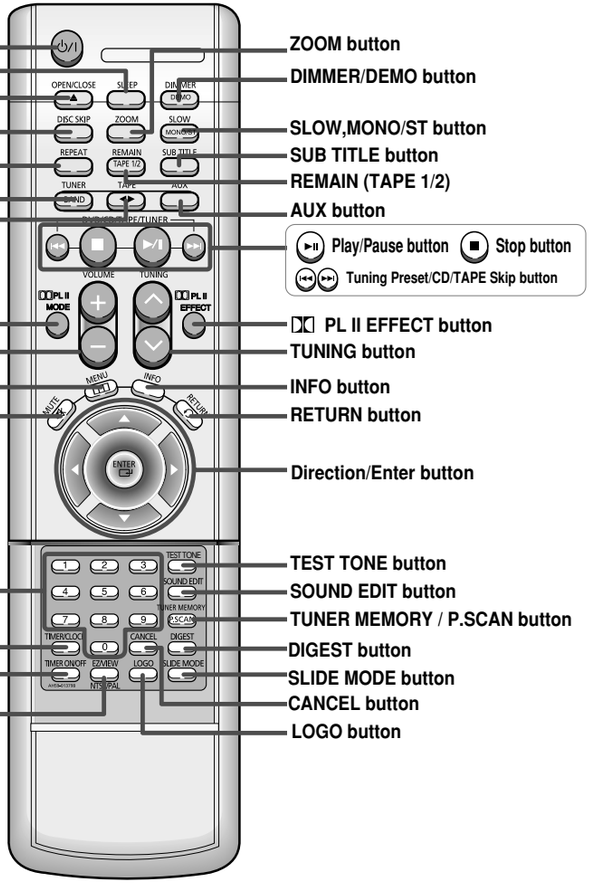
AM Antenna

FM Antenna

User's Manual

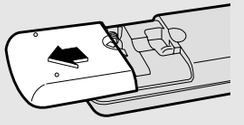
Description

—Remote Control—

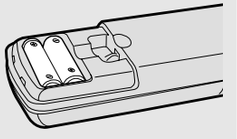


Insert Remote Batteries

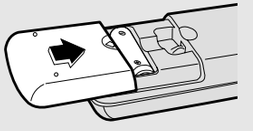
1 Remove the battery cover on the back of the remote by pressing down and sliding the cover in the direction of the arrow.



2 Insert two 1.5V AAA batteries, paying attention to the correct polarities (+ and –).



3 Replace the battery cover.



Caution **Follow these precautions to avoid leaking or cracking cells:**

- Place batteries in the remote control so they match the polarity:(+) to (+)and (–)to (–).
- Use the correct type of batteries.Batteries that look similar may differ in voltage.
- Always replace both batteries at the same time.
- Do not expose batteries to heat or flame.

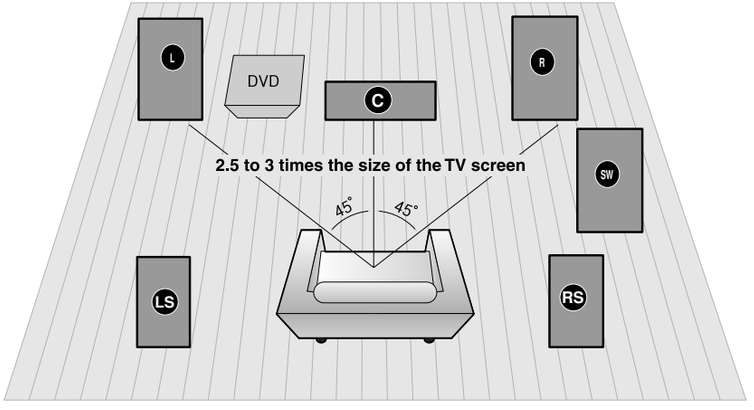
Range of Operation of the Remote Control

The remote control can be used up to approximately 23 feet/7 meters in a straight line. It can also be operated at a horizontal angle of up to 30° from the remote control sensor.

To open the remote control cover, push the top of the cover, then slide downward.

Connecting the Speakers

Before moving or installing the product, be sure to turn off the power and disconnect the power cord.



Position of the DVD Player

- Place it on a stand or cabinet shelf, or under the TV stand.

Front Speakers (L) (R)

- Place these speakers in front of your listening position, facing inwards (about 45°) toward you.
- Place the speakers so that their tweeters will be at the same height as your ear.
- Align the front face of the front speakers with the front face of the center speaker or place them slightly in front of the center speakers.

Center Speaker (C)

- It is best to install it at the same height as the front speakers.
- You can also install it directly over or under the TV.

Selecting the Listening Position

The listening position should be located about 2.5 to 3 times the distance of the TV's screen size away from the TV. Example: For 32" TVs 2~2.4m (6~8feet)
For 55" TVs 3.5~4m (11~13feet)

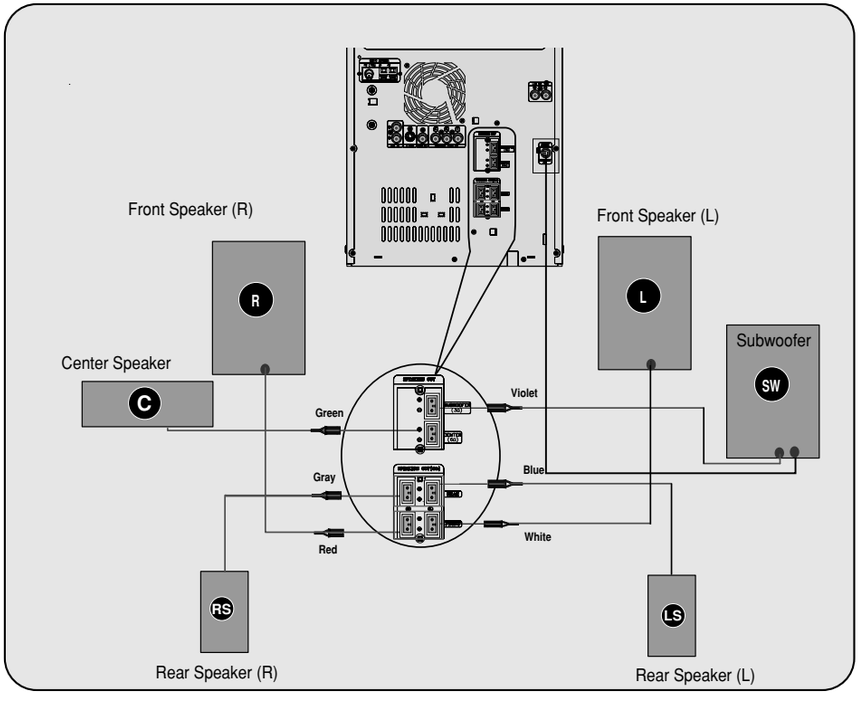
Rear Speakers (LS) (RS)

- Place these speakers behind your listening position.
- If there isn't enough room, place these speakers to face each other.
- Place them about 60 to 90cm (2 to 3feet) above your ear, facing slightly downward.

* Unlike the front and center speakers, the rear speakers are used to handle mainly sound effects and sound will not come from them all the time.

Subwoofer (SW)

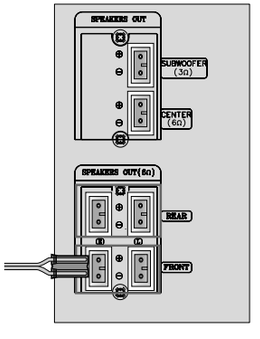
- The position of the subwoofer is not so critical. Place it anywhere you like.
- Usually, it is placed by a corner near the front speakers.



Back of the Main Unit

Connect the connecting jacks to the back of the DVD player.

- Make sure the colors of the speaker terminals match the colors of the connecting jacks.



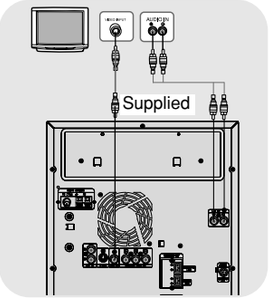
Connecting to a TV

Please be sure to turn off the power and unplug the power cord before moving or installing this unit.
Please choose one of three video connection methods.

Method 1 Using Video Out (Good Quality)

1 Connect Video Out on the player to Video In on your TV.

2 Press the TV/VIDEO button on the remote of TV control to set the TV to "VIDEO".

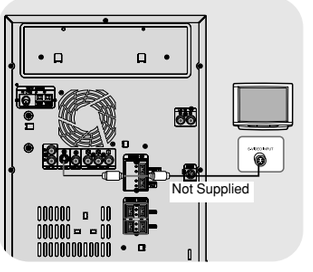


Method 2 Using S-Video Out (Better Quality)

Use this method if your TV has an S-Video In jack.

1 Connect S-Video Out to S-Video In on your TV.

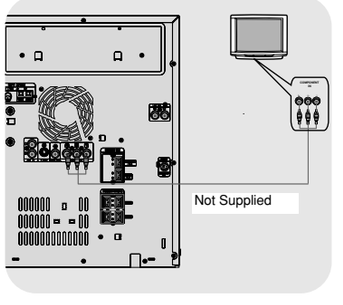
2 Press the TV/VIDEO button on the remote control of TV to set the TV to "S-VIDEO".



Method 3 Component Video (Best Quality)

Use this method if your TV have Pr,Pb and Y jacks.

If you television is equipped with Component Video inputs,connect a component video cable from the Pr,Pb and Y jacks on the back panel of the system to the corresponding jacks on your television.



Note

• Composite Video: A single video signal that is a composite of the black-and-white information (Y) and the color information (C).
• S-Video: A video transmission standard that provides a sharper, brighter picture than ordinary composite video by separating brightness and color signals.

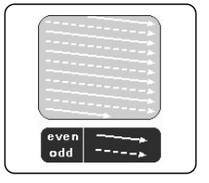
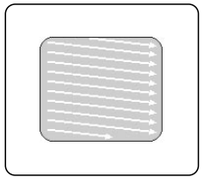
P.SCAN (Progressive Scan) Function

Unlike regular Interlace Scan, in which two fields of picture information alternate to create the entire picture (odd scan lines, then even scan lines), Progressive Scan uses one field of information (all lines displayed in one pass) to create a clear and detailed picture without visible scan lines.

Press and hold P.SCAN button on the remote controller for over 5 seconds in STOP mode.

• Pressing and holding the button for over 5 seconds will select "Progressive Scan" and "Interlace Scan" repetitively.

What is Progressive (or Non-Interlaced) Scanning?

Interlaced Scan (1 FRAME = 2 FIELDS)	Progressive Scan (FULL FRAME)
	
In interlaced-scan video, a frame consists of two interlaced fields (odd and even), where each field contains every other horizontal line in the frame. The odd field of alternating lines is displayed first, and then the even field is displayed to fill in the alternating gaps left by the odd field to form a single frame. One frame, displayed every 1/30th of a second, contains two interfaced fields, thus a total of 60 fields are displayed every 1/60th of a second. The interlaced scanning method is intended for capturing a still object.	The progressive scanning method scans one full frame of video consecutively down the screen, line by line. An entire image is drawn at one time, as opposed to the interlaced scanning process by which a video image is drawn in a series of passes. The progressive scanning method is desirable for dealing with moving objects.

Note

• This function works only on TVs equipped with component video inputs (Y, Pr, Pb) that support Progressive Video. (It does not work on TVs with conventional component inputs, i.e., non-progressive scan TVs.)
• Depending on the brand and model of your TV, this function may not work.

Selecting the Video Format

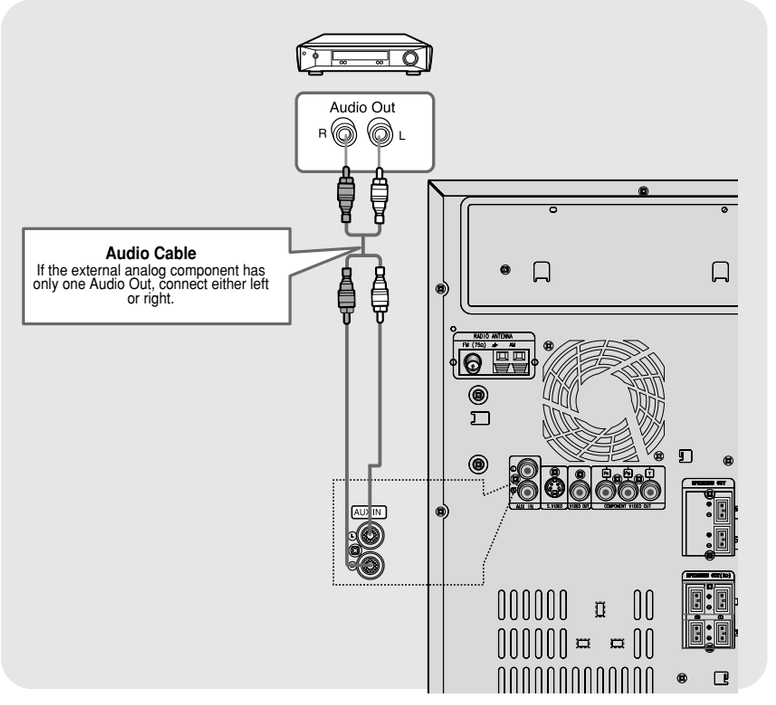
Turn off the main unit and then press **NTSC/PAL** on the Remote Control or **REC/PAUSE** on the Main Unit.

• By default, the video format is set to "PAL".
• Each time the button is pressed, the video format switches between "NTSC" and "PAL".
• Each country has a different video format standard.
• For normal playback, the video format of the disc must be the same as the video format of your TV.

Connecting External Components

Connecting an External Analog Component

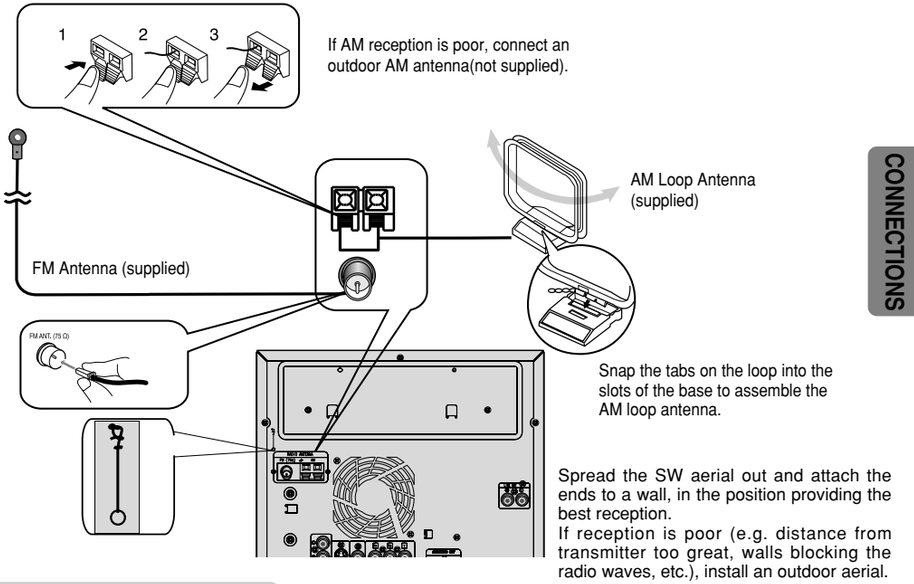
Example: Analog signal components such as a VCR, Camcorder, and TV.



1 Connect Audio In on the DVD player to Audio Out on the external analog component.
- Be sure to match connector colors.

2 Press **AUX** to select AUX.
- 'AUX' appears in the display.

Connecting the FM, AM(MW) and SW(option) Antennas


1
2
3
If AM reception is poor, connect an outdoor AM antenna(not supplied).
AM Loop Antenna (supplied)
FM Antenna (supplied)
Snap the tabs on the loop into the slots of the base to assemble the AM loop antenna.
Spread the SW aerial out and attach the ends to a wall, in the position providing the best reception.
If reception is poor (e.g. distance from transmitter too great, walls blocking the radio waves, etc.), install an outdoor aerial.

FM antenna connection

1. **Connect the FM antenna supplied to the FM 75Ω COAXIAL terminal as a temporary measure.**
2. **Slowly move the antenna wire around until you find a location where reception is good, then fasten it to a wall or other rigid surface.**

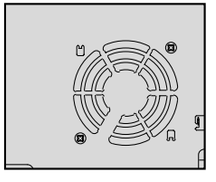
- If reception is poor, connect an outdoor antenna. Before attaching a 75Ω coaxial cable (with a standard type connector), disconnect the supplied FM antenna.

AM (MW) antenna connection

1. **Connect the AM loop antenna supplied to the AM and ⏚ terminals.**
2. **If reception is poor, connect an outdoor single vinyl-covered wire to the AM terminal. (Keep the AM loop antenna connected).**

Cooling Fan

The cooling fan dissipates the heat generated inside the unit so that the unit can be operated normally. The cooling fan is activated automatically to supply cool air to the unit.



Please observe the following cautions for your safety.

- Make sure the unit is well-ventilated. If the unit has poor ventilation, the temperature inside the unit could rise and may damage it.
- Do not obstruct the cooling fan or ventilation holes. (If the cooling fan or ventilation holes are covered with a newspaper or cloth, heat may build up inside the unit and fire may result.)

Setting the Clock

For each step, you have a few seconds to set the required options.
If you exceed this time, you must start again.

1 Switch the system on by pressing **POWER** button.

2 Press **TIMER/CLOCK** twice.

- CLOCK is displayed.

3 Press **ENTER**.
The hour flashes.

- Increase the hours : ▶
- Decrease the hours : ◀

4 When the correct hour is displayed, press **ENTER**.
The minutes flash.

- Increase the minutes : ▶
- Decrease the minutes : ◀

5 When the correct time is displayed, press **ENTER**.

- "TIMER" appears in the display.
- The current time is now set.

Note

- You can display the time, even when you are using another function, by pressing **TIMER/CLOCK** once.

Note

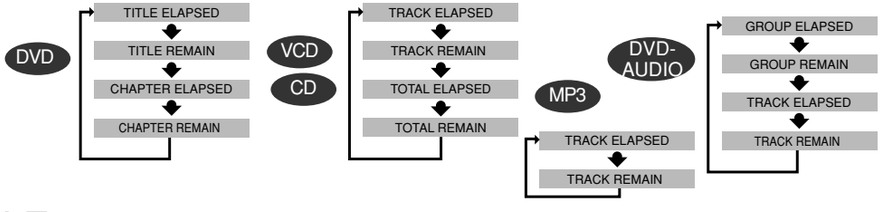
- You can also use Multi-Jog or I◀◀ ▶▶I button on the panel front instead of ◀ ,▶ buttons in step 3,4.

Checking the Remaining Time

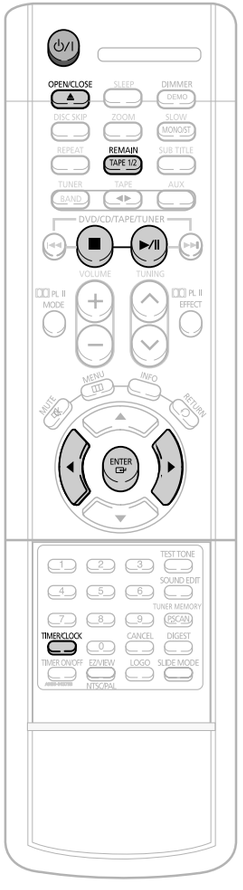
Press the REMAIN button.

- For checking the total and remaining time of a title or chapter being played.

Each time the REMAIN button is pressed



Disc Playback



Selecting a CD in the Disc changer

The **CD** function is automatically selected when Disc Skip is pushed.
To select a specific disc, press the corresponding **DISC (1, 2, 3)** button on the front panel or **DISC SKIP** on the remote control, until the required disc indicator flashes.
Result: All the discs will be played in turn, starting with the one selected.

- If you use the **DISC (1, 2, 3)** function when listening to the radio or to a tape, the system switches automatically to the CD mode.
- If the disc selected is not loaded, the next disc is played automatically.

OPERATION

DVD · DVD-AUDIO · VCD · CD

- Playback starts automatically.

MP3 · JPEG · DivX

- Playback starts automatically.
- If the TV is on, a list of MP3s on the CD will appear on the TV screen.

Note

- Depending on the content of the disc, the initial screen may appear different.
- Depending on the recording mode, some MP3-CDs cannot be played.
- Table of contents of a MP3-CD varies depending on the MP3 track format recorded on the disc.

To temporarily pause playback, press **PLAY/PAUSE** during playback.

- To resume playback, press **PLAY/PAUSE** button again.

To stop playback, press **STOP** during playback.

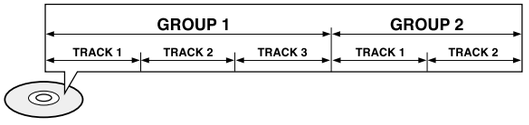
- If pressed once, "PRESS PLAY" is displayed and the stop position will be stored in memory. If **PLAY/PAUSE** (▶/II) button or **ENTER** button is pressed, playback resumes from the stop position. (This function works only with DVDs.)
- If pressed twice, "STOP" is displayed, and if **PLAY/PAUSE** (▶/II) button is pressed, playback starts from the beginning.

1p~28p(DS990)- NO GB 12/2/04 10:49 Page 20

Disc terminology

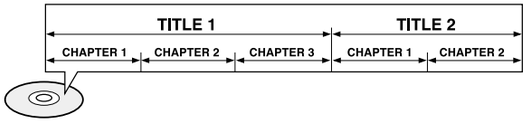
Groups and tracks (DVD-AUDIO)

- DVD-audios are divided into several large sections called "groups" and smaller sections called "tracks". Numbers are allotted to these sections. These numbers are called "group numbers" and "track numbers".



Titles and chapters (DVD-VIDEO)

- DVD-videos are divided into several large sections called "titles" and smaller sections called "chapters". Numbers are allotted to these sections. These numbers are called "title numbers" and "chapter numbers".



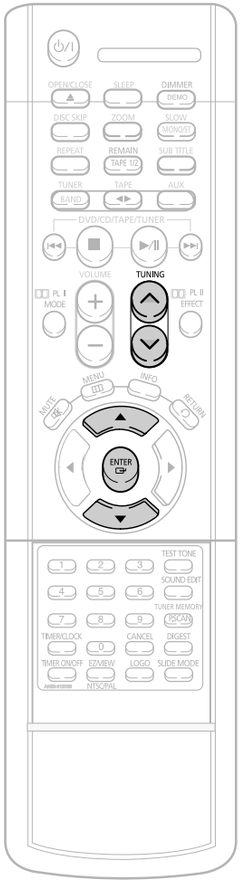
Tracks (Video and music CDs)

- Video and music CDs are divided into sections called "tracks". Numbers are allotted to these sections. These numbers are called "track numbers".

Note

- **In this manual, the instructions marked with "DVD (DVD)" are applicable to DVD-VIDEO, DVD-AUDIO, and DVD-R/RW discs. Where a particular DVD type is mentioned, it is indicated separately.**
- Depending on the content of the disc, the initial screen may appear different.

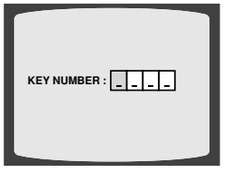
Bonus Group / Navigating Pages



Bonus Group DVD-AUDIO

Some DVD-Audio discs have an extra 'bonus' group that requires a 4-digit key number to access. See the disc packaging for details and the-key number.

When you play a DVD-Audio disc that has a bonus group, the key number input screen appears automatically.



Note

- If you eject the disc, switch the power off, or unplug the player, you will need to re-enter the key number.

Navigating Pages DVD-AUDIO

During playback, press the TUNING button on the remote control.

- You can select the desired image from a DVD-Audio disc containing still images.
- With some discs, you may not be able to select images depending on how the disc was manufactured.

OPERATION

DivX Playback

Skip Forward/Back

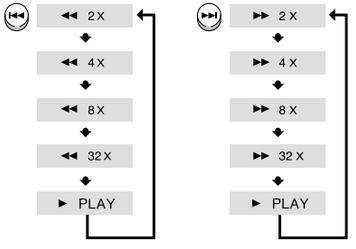
During playback, press the ⏮ ⏭ button.

- Go to the next file whenever you press ⏭ button, if there are over 2 files in the disk.
- Go to the previous file whenever you press ⏮ button, if there are over 2 files in the disk.

Fast playback

Press and hold ⏮ ⏭ button.

- Each time the button is held down during playback, the playback speed changes as follows:

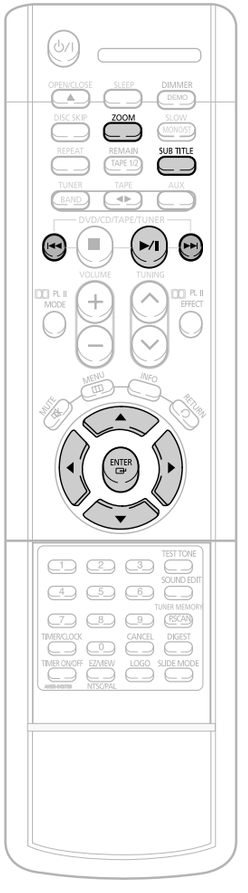


Zoom Function

1 Press **ZOOM** button.

- Each time you press the button, your selection will toggle between "ZOOM X2" and "ZOOM OFF".

2 Press Cursor ▲,▼, ◀,▶ buttons to move to the area you want to enlarge.



Note

- DivX files can be played in Zoom X2 mode only.

5 Minute Skip function

During playback, press the ◀,▶ button.

- Go to the screen about 5 minutes after whenever you press ▶ button.
- Go to the screen about 5 minutes earlier whenever you press ◀ button.

Subtitle Display

Press the **SUBTITLE** button.

- Each time you press the button, your selection will toggle between "SUBTITLE ON" and "SUBTITLE OFF".
- If the disc has only one subtitle file, it will be played automatically.
- Up to 8 subtitle languages are supported.

DivX Feature Table

DivX Supported

Avi files are used to contain the audio and video data; these must be stored on CD in the ISO 9660 format.

		SPEC
VIDEO Compatibility	DivX3.11	Up to the latest VERSION
	WMV	WMV V1/V2/V3/V7
AUDIO Compatibility	MP3	CBR : 80kbps~384kbps
	AC3	CBR : 128kbps~384kbps
	WMA	CBR : 56kbps~128kbps

MPEGs containing DivX can be divided into Video and Audio.

- **Video compatibility** : All versions of DivX later than 3.11 (including the latest 5.1) are supported. In addition, XviD is supported. For WMV, V1, V2, V3, and V7 formats are possible. The initial resolution is 720X480 and may support up to 720X576 .
- **Audio compatibility** : MP3s encoded at bitrates from 80kbps to 384kbps, AC3s from 128kbps to 384kbps, and WMAs from 56kbps to 128kbps are supported.
- **In addition, for subtitles, this unit will support Text format (SMI).**

Note

- When playing the DivX disk, you can play the file with extension of AVI only.
- Among the available DivX audio formats, DTS Audio is not supported.
- WMV V8 is not supported for WMV files.
- When burning a subtitle file to a CD-ROM with your PC, be sure to burn it as an SMI file.
- Divx Disc does not playing when its sampling frequency is lower than 32KHz.
- Some of the discs recorded in DivX or XviD depending on the way of recording could be played back not correctly or couldn't be played back at all.
- MP3 file support: MPEG1 LAYER3 (BITRATE : 128KBPS~320KBPS , SAMPLING FREQ.: 32K/44.1K/48KHz) .

Displaying Disc Information

You can view playback information on the disc on the TV screen.

Press **INFO** button on the remote control or Press **DISPLAY** button on the main set .

- Each time the button is pressed, the display changes as follows:

DVD

Display disappears

VCD CD

Display disappears

MP3 JPEG DivX

Display disappears

Note

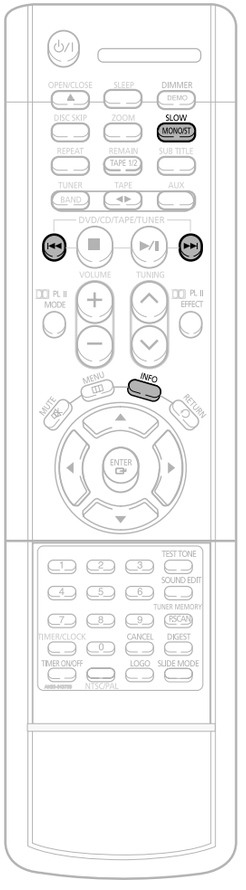
- Depending on the disc, the disc information display may appear different.
- Depending on the disc, you can also select DOLBY DIGITAL, or PRO LOGIC.

- **What is a Title?**
  A movie contained in a DVD disc.
- **What is a Chapter?**
  Each title on a DVD disc is divided into several smaller sections called "chapters".
- **appears on the TV screen!**
  If this symbol appears on the TV screen while buttons are being operated, that operation is not possible with the disc currently being played.
- **What is a Track (File)?**
  A section of video or a music file recorded on a VCD, CD, or MP3-CD.

Screen Display

DVD	DVD display	MP3	MP3 CD display		TRACK (FILE) display		AUDIO LANGUAGE display	DOLBY DIGITAL	DOLBY DIGITAL display
VCD	VCD display				TRACK (FILE) display				
CD	CD display		TITLE display				SUBTITLE display		ANGLE display
					REPEAT PLAYBACK display				
DVD AUDIO	DVD-AUDIO display		CHAPTER display		GROUP display	LR	STEREO (L/R) display	DivX	DivX display

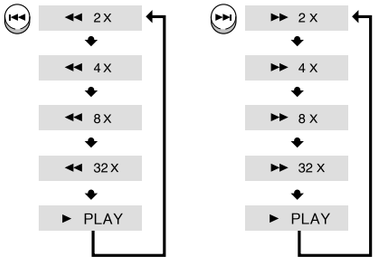
Fast/Slow Playback



Fast Playback DVD VCD CD MP3

Press and hold ⏮ ⏭.

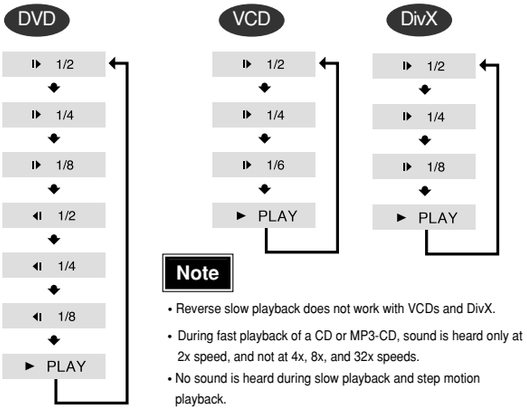
- Each time the button is held down during playback, the playback speed changes as follows:



Slow Playback

Press **SLOW** button.

- Each time the button is pressed during playback, the playback speed changes as follows:



Note

- Reverse slow playback does not work with VCDs and DivX.
- During fast playback of a CD or MP3-CD, sound is heard only at 2x speed, and not at 4x, 8x, and 32x speeds.
- No sound is heard during slow playback and step motion playback.

OPERATION

Skipping Scenes/Songs

DVD VCD MP3

Briefly press ⏮ ⏭.

- Each time the button is pressed briefly during playback, the previous or next chapter, track, or directory (file) will be played.
- But, you cannot skip chapters consecutively.

DVD

VCD

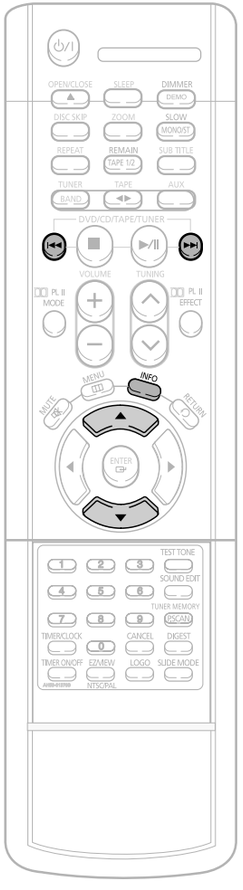
- When watching a VCD with a track longer than 15 minutes, each time ⏮ ⏭ is pressed, playback will skip back or forward 5 minutes.

MP3

Angle Function

This function allows you to view the same scene in different angles.

DVD



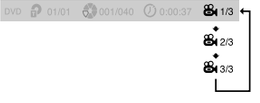
1 Press **INFO** button.

2 Press Cursor ▶ button to move to ANGLE display.

OPERATION

3 Press Cursor ▲, ▼ buttons or numeric buttons to select the desired angle.

- Each time the button is pressed, the angle changes as follows:



Note

- The Angle function works only with discs on which multiple angles have been recorded.

1p~28p(DS990)- NO GB 12/2/04 10:13 Page 28

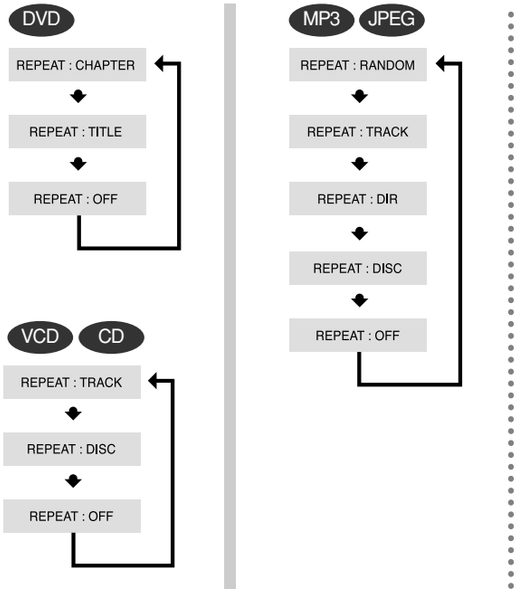
Repeat Playback

Repeat playback allows you to repeatedly play a chapter, title, track (song), or directory (MP3 file).

DVD VCD CD MP3 JPEG

Press **REPEAT** button.

- Each time the button is pressed during playback, the repeat playback mode changes as follows:



Repeat Playback Options

CHAPTER
Repeatedly plays the selected chapter.

TITLE
Repeatedly plays the selected title.

RANDOM
Plays tracks in random order.
(A track that has already been played may be played again.)

TRACK
Repeatedly plays the selected track.

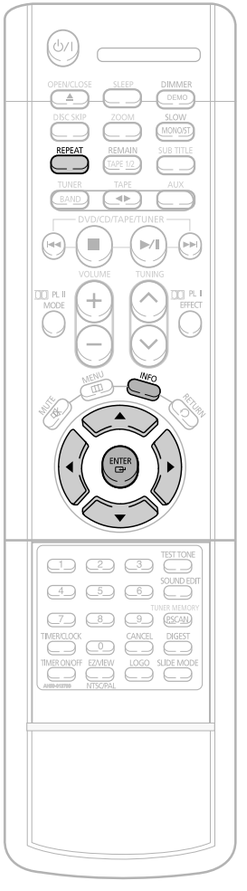
DIR
Repeatedly plays all tracks in the selected folder.

DISC
Repeatedly plays the entire disc.

OFF
Cancels Repeat Playback.

Note

- Repeat playback operation is not possible with version 2.0 VCD discs if PBC is turned on.
  To use Repeat Playback on a VCD with PBC, you should set the PBC to OFF in the disc menu. (See page 33.)



DVD VCD CD

To Select a Repeat Playback Mode in the Disc Information Screen

1 Press **INFO** button twice .

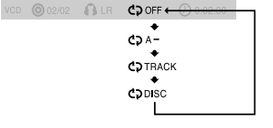
- For a VCD or CD,Press INFO button once.

2 Press Cursor ▶ button to move to REPEAT PLAYBACK display.

3 Press Cursor ▼ button to select the desired Repeat Playback mode.

DVD

VCD CD



4 Press **ENTER** button.

Note

- For MP3 and JPEG discs, you cannot select Repeat Play from the information display screen.
- For VCD Version 2.0 discs, you can select Repeat Play in PBC off mode.

OPERATION

A↔B Repeat Playback

DVD VCD CD

1 Press **INFO** button twice.

- For a VCD or CD, press **INFO** button once.

DVD EN 1/3 OFF/ 02 OFF

2 Press Cursor button to move to REPEAT PLAYBACK ( ) display.

DVD EN 1/3 OFF/ 02 OFF

3 Press Cursor ▲, ▼ buttons to select 'A-' and then press **ENTER** button at the beginning of the desired segment.

- When **ENTER** button is pressed, the selected position will be stored in memory.

DVD EN 1/3 OFF/ 02 A-

DVD EN 1/3 OFF/ 02 A-?

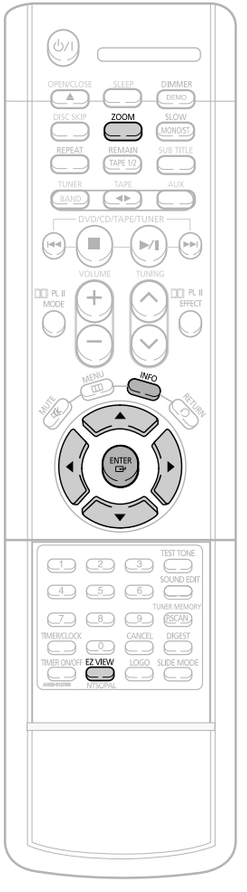
REPEAT : A–

4 Press **ENTER** button at the end of the desired segment.

- The specified segment will be played repeatedly.

DVD EN 1/3 OFF/ 02 A-B

REPEAT : A–B



To return to normal playback, press Cursor ▲, buttons to select OFF.

Note

- The A-B Repeat function will not work on an MP3 or JPEG disc.

Zoom Function

This function allows you to enlarge a particular area of the displayed image.

Zoom (Screen Enlarge) Function

DVD VCD

1 Press **ZOOM** button.

2 Press Cursor ▲, ▼, ◀, ▶ buttons to move to the area you want to enlarge.

3 Press **ENTER** button.

- Each time the button is pressed, the zoom level changes as follows:

ZOOM X 1.5 → ZOOM X 2 → ZOOM X 3 → ZOOM OFF

Aspect Ratio

DVD

Press **EZ VIEW** button.

- Each time the button is pressed, the zoom function will switch between On and Off.
- When a movie is played in Wide screen format, black bars at the top and bottom of the TV screen can be removed by pressing the **EZ VIEW** button.

Note

- This function will not work if the DVD is recorded with multi-camera angle format.
- Black bars may not disappear because some DVD discs have a built-in horizontal to vertical ratio.

OPERATION

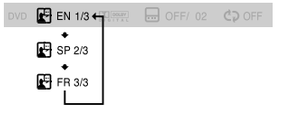
Selecting Audio Subtitle Language

Audio Language Selection Function DVD

1 Press **INFO** button twice.

2 Press Cursor ▲, ▼ buttons or numeric buttons to select the desired audio language.

- Depending on the number of languages on a DVD disc, a different audio language (ENGLISH, SPAIN,JAPANESE, etc.) is selected each time the button is pressed.



Subtitle Language Selection Function DVD

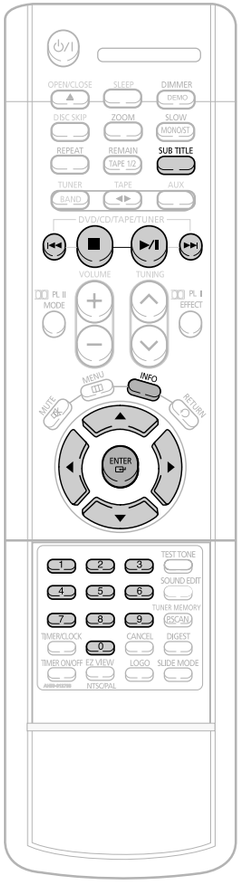
1 Press **INFO** button twice.

2 Press Cursor ▶ button to move to SUBTITLE display.

3 Press Cursor ▼ button or numeric buttons to select the desired subtitle.

Note

- You can use the SUBTITLE button on the remote control to select a subtitle language.
- Depending on the disc, the Subtitle and Audio Language functions may not work.



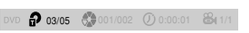
Moving Directly to a Scene/Song

DVD VCD CD

1 Press **INFO** button.

Moving to a Title/Track

2 Press Cursor ▲, ▼ buttons or numeric buttons to select the desired title/track and then press **ENTER** button.

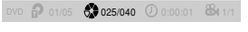


Moving to a Chapter

3 Press Cursor ◀, ▶ buttons to move to Chapter display.

Moving to a Chapter

4 Press Cursor ▲, ▼ buttons or numeric buttons to select the desired chapter and then press **ENTER** button.



Moving to a Specific Time

5 Press Cursor ◀, ▶ buttons to move to time display.

Moving to a Specific Time

6 Press the numeric buttons to select the desired time and then press **ENTER** button.

MP3 JPEG

Press the **numeric** buttons.

- The selected file will be played.
- An MP3 or JPEG disc cannot be moved from the disc information screen.
- When playing an MP3 or JEPG disc, you cannot use ▲, ▼ to move a folder. To move a folder, press ■ (Stop) and then press ▲, ▼.

Note

- You can press ⏮ ⏭ on the remote control to move directly to the desired title, chapter, or track.
- Depending on the disc, you may not be able to move to the selected title or time.

OPERATION

JPEG File Playback JPEG

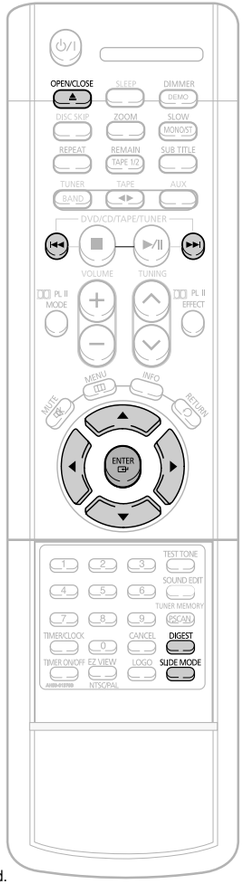
Images captured with a digital camera or camcorder, or JPEG files on a PC can be stored on a CD and then played back with this DVD player.

Slide Mode

1 Place the JPEG disc on the disc tray.

2 Press the **OPEN/CLOSE** button.

3 Press **SLIDE MODE** button.



- Playback starts automatically.
- Each time the button is pressed, the image makes the transition as follows:

SLIDE SHOW MODE : 1	From top to bottom
SLIDE SHOW MODE : 2	From bottom to top
SLIDE SHOW MODE : 10	Rectangular shape in the center
SLIDE SHOW MODE : 11	Vertical curtain shape
SLIDE SHOW MODE : RAND	Each time a new image is displayed, slide modes (1~11) will be randomly and automatically be applied.
SLIDE SHOW MODE : NONE	Cancels the slide mode.

Press ⏮ ⏭ to skip to the next slide.

- Each time the button is pressed, the slide moves backward or forward.

Digest Function

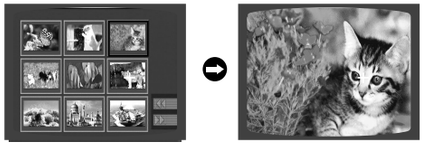
You can view 9 JPEG images on the TV screen.

1 Press **DIGEST** button during playback.

- JPEG files will be shown in 9 windows.

2 Press Cursor ▲, ▼, ◀, ▶ buttons to select the desired image and then press **ENTER** button.

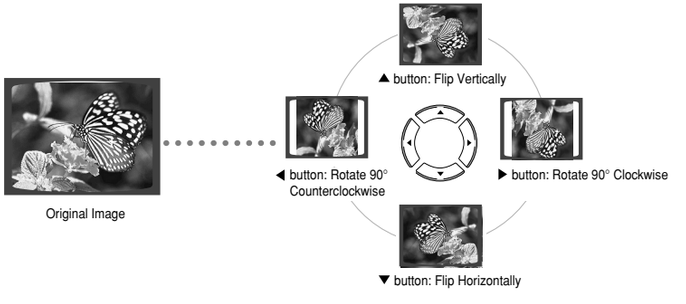
- The selected image is played for 5 seconds before moving to the next image.



To view the previous or next image with 9 windows, press ⏮ ⏭ .

Rotate/Flip Function

Press Cursor ▲, ▼, ◀, ▶ buttons during playback.


▲ button: Flip Vertically
◀ button: Rotate 90° Counterclockwise
▶ button: Rotate 90° Clockwise
Original Image
▼ button: Flip Horizontally

OPERATION

Using Disc Menu

You can use the menus for the audio language, subtitle language, profile, etc.
DVD menu contents differ from disc to disc.

DVD

1 In stop mode,Press **MENU** button.

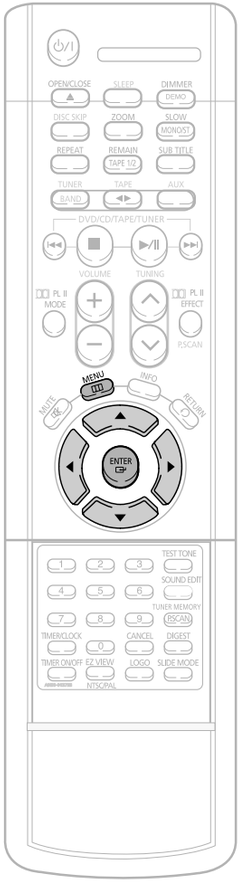
- When playing a VCD (version 2.0), this toggles between PBC ON and OFF.

2 Press Cursor ▲, ▼buttons to move to 'DISC MENU' and then press **ENTER** button.

- When you select the disc menu that is not supported by the disc, the "This menu is not supported" message appears on the screen.

3 Press Cursor ▲, ▼, ◀, ▶buttons to select the desired item.

4 Press **ENTER** button.



Note

PBC (Playback Control) Function

When playing a VCD (version 2.0), you can select and view various scenes according to the menu screen.

PBC ON: This VCD disc is version 2.0. The disc is played back according to the menu screen. Some functions may be disabled. When some functions are disabled, select "PBC OFF" to enable them.

PBC OFF: This VCD disc is version 1.1. The disc is played back in the same way as with a music CD.

Using the Title Menu

For DVDs containing multiple titles, you can view the title of each movie.
Depending on the disc, this function may either not work at all or may work differently.

DVD

1 In stop mode Press **MENU** button.

2 Press Cursor ▲, ▼ button to move to 'Title Menu'.

3 Press **ENTER** button.

- The title menu appears.

Press **MENU** button to exit the setup screen.

OPERATION

Setting the Language

OSD language is set to English by default.

1 In stop mode,Press **MENU** button.

2 Press Cursor ▼ button to move to 'Setup' and then press **ENTER** button.

3 Press **ENTER** button.

4 Press Cursor ▲,▼ button to select the desired item and then press **ENTER** button.

5 Press Cursor ▲,▼ button to select the desired language and then press **ENTER** button.

- Once the setup is complete, if the language was set to English, OSD will be displayed in English.

Note

- To select other language, select OTHER and enter the language code of your country.
  (See 61 page for language code of countries)
  AUDIO, SUB TITLE and DISC MENU language can be selected.

Selecting the OSD Language

Selecting the Audio Language (recorded on the disc)

Selecting the Subtitle Language (recorded on the disc)

Selecting the Disc Menu Language (recorded on the disc)

* If the language you selected is not recorded on the disc, menu language will not change even if you set it to your desired language.

Press **MENU** button to exit the setup screen.

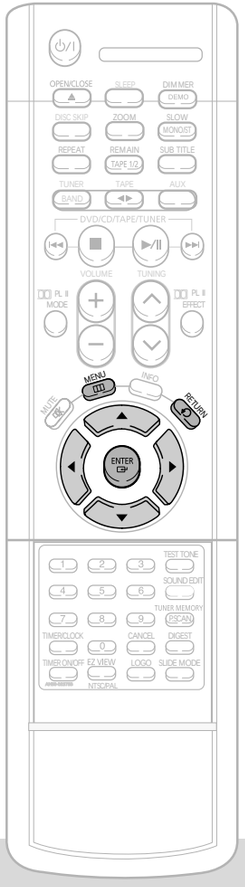
Press **RETURN** button to return to the previous level.

Language Code List

Enter the appropriate code number for the initial settings "Disc Audio", "Disc Subtitle" and/or "Disc Menu" (See page 33).

Code	Language	Code	Language	Code	Language	Code	Language
1027	Afar	1181	Frisian	1334	Latvian, Lettish	1506	Slovenian
1028	Abkhazian	1183	Irish	1345	Malagasy	1507	Samoan
1032	Afrikaans	1186	Scots Gaelic	1347	Maori	1508	Shona
1039	Amharic	1194	Galician	1349	Macedonian	1509	Somali
1044	Arabic	1196	Guarani	1350	Malayalam	1511	Albanian
1045	Assamese	1203	Gujarati	1352	Mongolian	1512	Serbian
1051	Aymara	1209	Hausa	1353	Moldavian	1513	Siswati
1052	Azerbaijani	1217	Hindi	1356	Marathi	1514	Sesotho
1053	Bashkir	1226	Croatian	1357	Malay	1515	Sundanese
1057	Byelorussian	1229	Hungarian	1358	Maltese	1516	Swedish
1059	Bulgarian	1233	Armenian	1363	Burmese	1517	Swahili
1060	Bihari	1235	Interlingua	1365	Nauru	1521	Tamil
1069	Bislama	1239	Interlingue	1369	Nepali	1525	Tegulu
1066	Bengali; Bangla	1245	Inupiak	1376	Dutch	1527	Tajik
1067	Tibetan	1248	Indonesian	1379	Norwegian	1528	Thai
1070	Breton	1253	Icelandic	1393	Occitan	1529	Tigrinya
1079	Catalan	1254	Italian	1403	(Afan) Oromo	1531	Turkmen
1093	Corsican	1257	Hebrew	1408	Oriya	1532	Tagalog
1097	Czech	1261	Japanese	1417	Punjabi	1534	Setswana
1103	Welsh	1269	Yiddish	1428	Polish	1535	Tonga
1105	Danish	1283	Javanese	1435	Pashto, Pushto	1538	Turkish
1109	German	1287	Georgian	1436	Portuguese	1539	Tsonga
1130	Bhutani	1297	Kazakh	1463	Quechua	1540	Tatar
1142	Greek	1298	Greenlandic	1481	Rhaeto-Romance	1543	Twi
1144	English	1299	Cambodian	1482	Kirundi	1557	Ukrainian
1145	Esperanto	1300	Kannada	1483	Romanian	1564	Urdu
1149	Spanish	1301	Korean	1489	Russian	1572	Uzbek
1150	Estonian	1305	Kashmiri	1491	Kinyarwanda	1581	Vietnamese
1151	Basque	1307	Kurdish	1495	Sanskrit	1587	Volapuk
1157	Persian	1311	Kirghiz	1498	Sindhi	1613	Wolof
1165	Finnish	1313	Latin	1501	Sangro	1632	Xhosa
1166	Fiji	1326	Lingala	1502	Serbo-Croatian	1665	Yoruba
1171	Faeroese	1327	Laothian	1503	Singhalese	1684	Chinese
1174	French	1332	Lithuanian	1505	Slovak	1697	Zulu

Setting TV Screen type



1 In stop mode,Press **MENU** button.

2 Press Cursor ▼ button to move to 'Setup' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'TV DISPLAY' and then press **ENTER** button.

4 Press Cursor ▲,▼ button to select the desired item and then press **ENTER** button.

- Once the setup is complete, you will be taken to the previous screen.

Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

Adjusting the TV Aspect Ratio (Screen Size)

The horizontal to vertical screen size ratio of conventional TVs is 4:3, while that of wide screen and high definition TVs is 16:9. This ratio is called the aspect ratio. When playing DVDs recorded in different screen size, you should adjust the aspect ratio to fit your TV or monitor.

✱ For a standard TV, select either "4:3LB" or "4:3PS" option according to personal preference. Select "16:9" if you have a wide screen TV.

WIDE : Select this to view a 16:9 picture in the full-screen mode on your wide screen TV.
- You can enjoy the wide screen aspect.

4:3LB (4:3 Letter box) : Select this to play a 16:9 picture in the letter box mode on a conventional TV.
- Black bars will appear at the top and bottom of the screen.

4:3PS (4:3 Pan&Scan) : Select this to play a 16:9 picture in the pan & scan mode on a conventional TV.
- You can see the central portion of the screen only (with the sides of the 16:9 picture cut off).

Note
- If a DVD is in the 4:3 ratio, you cannot view it in wide screen.
- Since DVD discs are recorded in various image formats, they will look different depending on the software, the type of TV, and the TV aspect ratio setting.

SETUP

Setting Parental Controls (Rating Level)

Use this to restrict playback of adult or violent DVDs you do not want children to view.

1 in stop mode,Press **MENU** button.

2 Press Cursor ▼ button to move to 'Setup' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'PARENTAL' and then press **ENTER** button.

4 Press Cursor ▲,▼ button to select the desired rating level and then press **ENTER** button.

- If you have selected Level 6, you cannot view DVDs with Level 7 or higher.
- The higher the level, the closer the content is to violent or adult material.

5 Enter the password and then press **ENTER** button.

- The password is set to "7890" by default.
- Once the setup is complete, you will be taken to the previous screen.

Note

- This function works only if a DVD disc contains the rating level information.

Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

Setting the Password

You can set the password for the Parental (rating level) setting.

1 Press **MENU** button.

2 Press Cursor ▼ button to move to 'Setup' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'PASSWORD' and then press **ENTER** button.

4 Press **ENTER** button.

5 Enter the password and then press **ENTER** button.

- Enter the old password, a new password, and confirm new password.
- The setting is complete.

Press **RETURN** button to return to the previous level.

Press **CANCEL** button to cancel the error numeric when you inputting password.

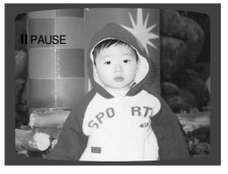
Press **MENU** button to exit the setup screen.

Setting the Wallpaper JPEG DVD VCD

While watching a DVD,,VCD or JPEG CD, you can set the image you like as a wallpaper.

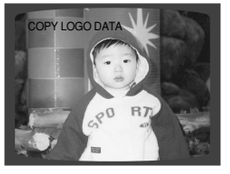
Setting the Wallpaper

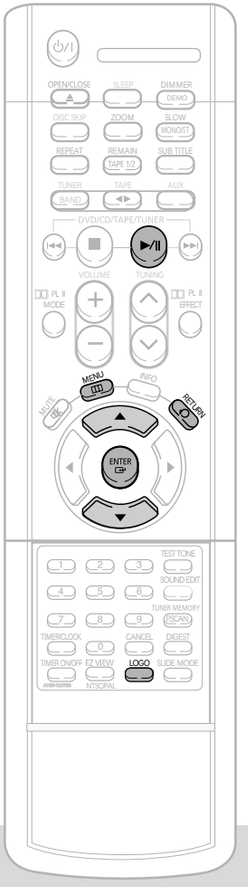
1 During playback, press **PLAY/PAUSE** button when the image you like comes up.



2 Press **LOGO** button.

• "COPY LOGO DATA" will be displayed on the TV screen.





Note

- The selected wallpaper will be displayed.
- You can repeat Steps 1 and 2 to set up to 3 wallpapers.
- The power will turn off and turn on automatically and back on the display mode.

Select this to set the Samsung Logo image as your wallpaper.

Select this to set the desired image as your wallpaper.

To Change the Wallpaper

1 Press **MENU** button.

2 Press Cursor ▼ button to move to 'Setup' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'LOGO' and then press **ENTER** button.

4 Press ▼ to select the desired 'USER', and then press **ENTER**.

5 Press **MENU** button to exit the setup screen.

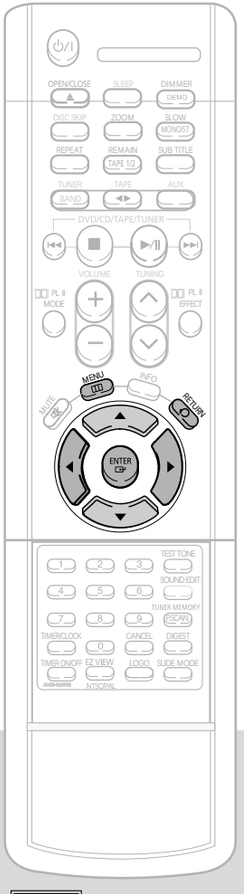
Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

SETUP

DVD Playback Mode

Some DVD-Audio discs contain DVD-Video as well as DVD-Audio.
To play back the DVD-Video portion of the DVD-Audio disc, set the unit to DVD-Video mode.



1 Press the **MENU** button while the disc tray is open.

2 Press Cursor ▼ button to move to 'Setup' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'DVD TYPE' and then press **ENTER** button.

4 Press Cursor ▲,▼ button to move to 'DVD VIDEO' and then press **ENTER** button.

- Set steps 1 ~ 4 again if you want to switch to DVD AUDIO Play mode.

When Selecting DVD Play Mode:

- **DVD VIDEO** : set to play the DVD video contents contained in DVD audio disc.
- **DVD AUDIO** : set to play the default DVD audio.

Note

- DVD Play mode is set to DVD Audio as factory default setting.

Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

AV SYNC Setup

Video may look slower than the audio if it is connected with digital TV.
In this case, adjust the delay time of audio to optimal status to fit the video.

1 Press the **MENU** button.

- Setup menu appears.

2 Press Cursor ▲, ▼ buttons to move to 'Audio' and then press **ENTER** button.

- 'Audio' menu appears.

3 Press Cursor ▲, ▼ buttons to move to 'AV-SYNC' and then press **ENTER** button.

- AV-SYNC screen appears.

4 Press Cursor ▲, ▼ buttons to select the Delay Time of AV-SYNC and then press the **ENTER** button.

- You can set the audio delay time between 0 ms and 300 ms. Set it to the optimal status.

SETUP

Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

Setting the Speaker Mode

Signal outputs and frequency responses from the speakers will automatically be adjusted according to your speaker configuration and whether certain speakers are used or not.

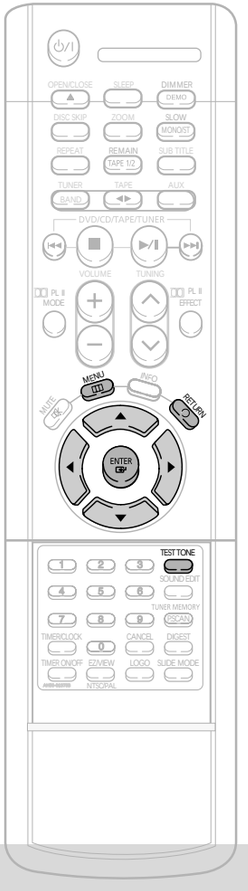
1 In Stop mode, press **MENU** button.

2 Press Cursor ▼ button to move to 'Audio' and then press **ENTER** button.

3 In the Speaker Setup, press the **ENTER** button again.

4 Press Cursor ▲, ▼, ◀, ▶ buttons to move to the desired speaker and then press **ENTER** button.

- For C, LS, and RS, each time the button is pressed, the mode switches alternately as follows: SMALL → NONE.
- For L and R, the mode is set to SMALL.



SMALL : Select this when using the speakers.
NONE : Select this when no speakers are installed.

Note

- Depending on PRO LOGIC and STEREO, the speaker mode may vary.

Setting the Test Tone

Press the Test Tone to check the speaker connections and to adjust the speaker levels.

1 In Stop mode, press **MENU** button.

2 Press Cursor ▼ button to move to 'Audio' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'TEST TONE' and then press **ENTER** button.

- The test tone will be sent to L → C → R → RS → LS → SW in that order. If the ENTER button is pressed again at this time, the test tone will stop.

Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

SETUP

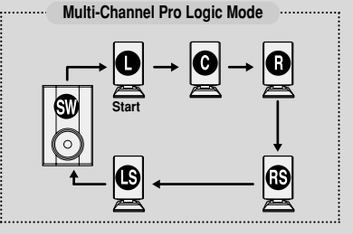
When manually testing using the **TEST TONE** button

L: Front Speaker (L) C: Center Speaker SW: Subwoofer
R: Front Speaker (R) LS: Rear Speaker (L) RS: Rear Speaker (R)

Press **TEST TONE** button.

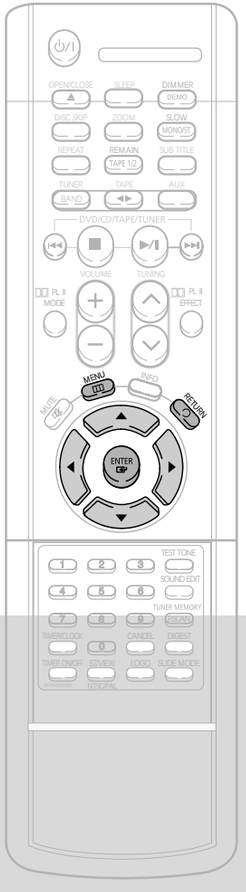
- Test tone will be produced as follows: When playing a DVD or CD, this will work only in Stop mode.
- Use this function to check that each speaker is correctly connected and that there is no problem.

To end the test tone, press **TEST TONE** button.



Setting the Delay Time

If the speakers cannot be placed at equal distances from the listening position, you can adjust the delay time of the audio signals from the center and rear speakers.



1 In Stop mode, press **MENU** button.

2 Press Cursor ▼ button to move to 'Audio' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'DELAY TIME' and then press **ENTER** button.

4 Press Cursor ▲, ▼, ◀, ▶ buttons to move to the desired speaker and then press **ENTER** button.

5 Press Cursor ◀, ▶ to set the Delay time.

- You can set the delay time for C between 00 and 05mSEC and for LS and RS between 00 and 15mSEC.

SETUP

Setting up the Speaker Delay Time

When 5.1CH Surround Sound is played, you can enjoy the best sound if the distance between you and each speaker is the same. Since the sounds arrive at the listening position at different times depending on the placement of speakers, you can adjust this difference by adding a delay effect to the sound of the Center Speaker and Surround Speakers.

Note

- With PL (Dolby Pro Logic II), the delay time may be different for each mode.
- With AC-3 and DTS, the delay time can be set between 00 and 15mSEC.

- **Setting CENTER SPEAKER**

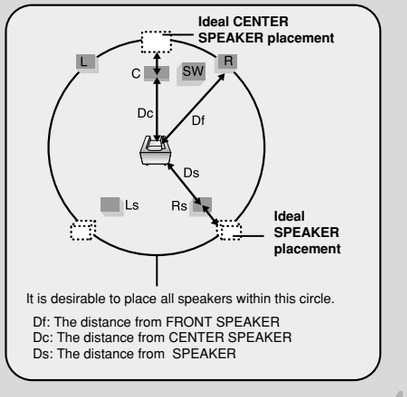
If the distance of Dc is equal to or longer than the distance of Df in the figure, set the mode as 0ms. Otherwise, change the setting according to the table.

Distance between Df and Dc	Delay Time
0.00 m	0 ms
0.34 m	1 ms
0.68 m	2 ms
1.02 m	3 ms
1.36 m	4 ms
1.70 m	5 ms

- **Setting REAR () SPEAKERS**

If the distance of Df is equal to the distance of Ds in the figure, set the mode as 0ms. Otherwise, change the setting according to the table.

Distance between Df and Ds	Delay Time
0.00 m	0 ms
1.02 m	3 ms
2.04 m	6 ms
3.06 m	9 ms
4.08 m	12 ms
5.10 m	15 ms

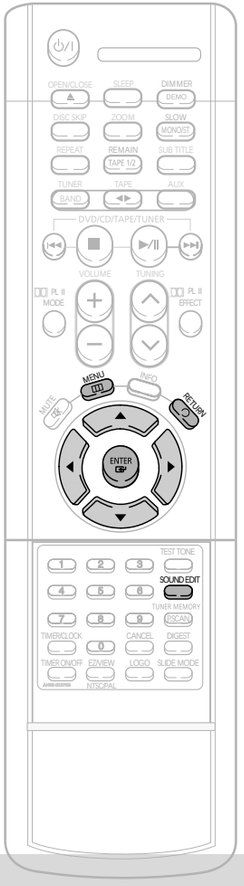


It is desirable to place all speakers within this circle.

Df: The distance from FRONT SPEAKER
Dc: The distance from CENTER SPEAKER
Ds: The distance from SPEAKER

Setting the Audio Quality

You can adjust the balance and level for each speaker.



Method 1 When adjusting the audio quality using the setup screen

1 In Stop mode, press **MENU** button.

2 Press Cursor ▼ button to move to 'Audio' and then press **ENTER** button.

3 Press Cursor ▼ button to move to 'SOUND EDIT' and then press **ENTER** button.

4 Press Cursor ▲, ▼, ◄, ► buttons to select the desired item and then press **ENTER** button.

Press **RETURN** button to return to the previous level.

Press **MENU** button to exit the setup screen.

Method 2 When manually adjusting with the SOUND EDIT button

Adjusting Front Speaker Balance

1 Press **SOUND EDIT** button and then press Cursor ◄, ►.

Adjusting Rear Speaker Balance

2 Press **SOUND EDIT** button and then press Cursor ◄, ►.

Adjusting Center Speaker Level

3 Press **SOUND EDIT** button and then press Cursor ◄, ►.

Adjusting Rear Speaker Level

4 Press **SOUND EDIT** button and then press Cursor ◄, ►.

Adjusting Subwoofer Speaker Level

5 Press **SOUND EDIT** button and then press Cursor ◄, ►.

Note

Adjusting Front/Rear Speaker Balance

- You can select between 00 and –06 and OFF.
- The volume decreases as you move closer to –6.

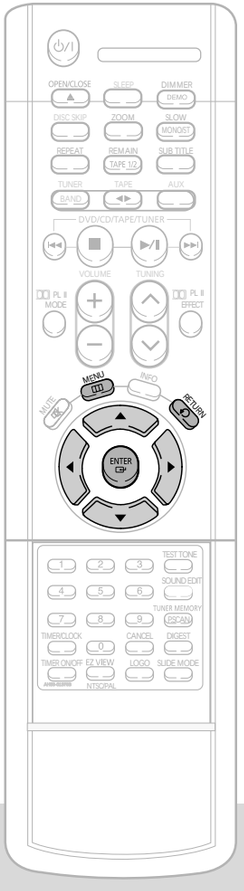
Adjusting Center/Rear/Subwoofer Speaker Level

- The volume level can be adjusted in steps from +6dB to –6dB.
- The sound gets louder as you move closer to +6dB and quieter as you get closer to -6dB.

SETUP

Setting the DRC (Dynamic Range Compression)

You can use this function to enjoy Dolby Digital sound when watching movies at low volume at night.



1 In stop mode,Press **MENU** button.

2 Press Cursor ▼ button to move to ‘Audio’ and then press **ENTER** button.

3 If “DRC” is selected, press **ENTER**.

4 Press Cursor ▲, ▼ to adjust the ‘DRC’.

- The Cursor ▲ button is pressed, the greater the effect, and the Cursor ▼ button is pressed, the smaller the effect.

Press **RETURN** button to return to the previous level.

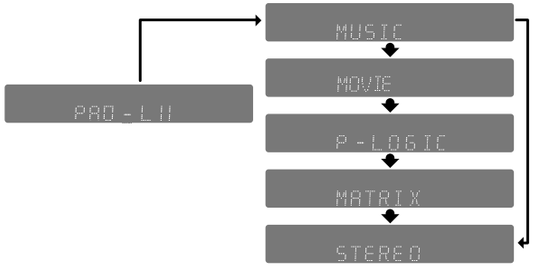
Press **MENU** button to exit the setup screen.

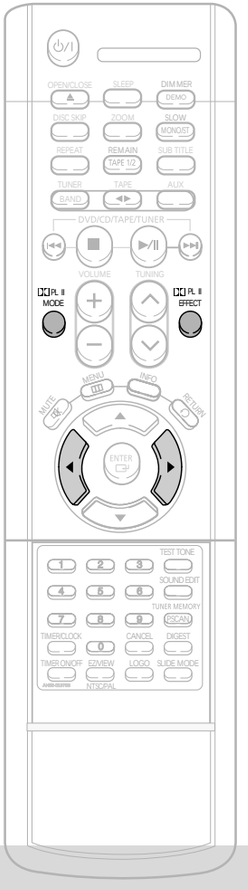
SETUP

Dolby Pro Logic II Mode

You can select the desired Dolby Pro Logic II audio mode.

Press **PL II MODE** button.





Note • When selecting Pro Logic II mode, connect your external device to the AUDIO INPUT jacks (L and R) on the player. If you connect to only one of the inputs (L or R), you cannot listen to 5.1 channel surround sound.

PRO LOGIC II

- **MUSIC:** When listening to music, you can experience sound effects as if you are listening to the actual performance.
- **MOVIE:** Adds realism to the movie soundtrack.
- **PRO LOGIC:** You will experience a realistic multi-channel effect, as if using five speakers, while using just the front left and right speakers.
- **MATRIX:** You will hear 5.1 channel surround sound.

STEREO: Select this to listen to sounds from the front left and right speakers and the subwoofer only.

Dolby Pro Logic II Effect

This function works only in Dolby Pro Logic MUSIC mode.

1 Press **PL II MODE** button to select 'MUSIC' mode.

2 Press **PL II EFFECT** button and then press Cursor ◄ , ► buttons to select the mode.

- You can select either 0 or 1.

3 Press **PL II EFFECT** button and then press Cursor ◄ , ► buttons to select the mode.

- You can select between 0 and 7.

4 Press **PL II EFFECT** button and then press Cursor ◄ , ► buttons to select the mode.

- You can select between 0 and 6.

Note • When playing a DVD disc encoded with two or more channels, multi-channel mode will be selected automatically and PL II (Dolby Pro Logic II) button does not work.

- **PANORAMA:** This mode extends the front stereo image to include the surround speakers for an exciting "wraparound" effect with side wall imaging.
- **CENTER WIDTH:** Sound is output to the center speaker only. The front left and right speakers produce phantom sound.
- **DIMENSION:** Incrementally adjusts the sound field (DSP) from the front or rear.

Listening to Radio

You can listen to the chosen band (FM, MW(SW1,2) broadcast stations) by using either the automatic or manual tuning operation.

Remote Control Unit

1 Press **TUNER/ BAND** button.

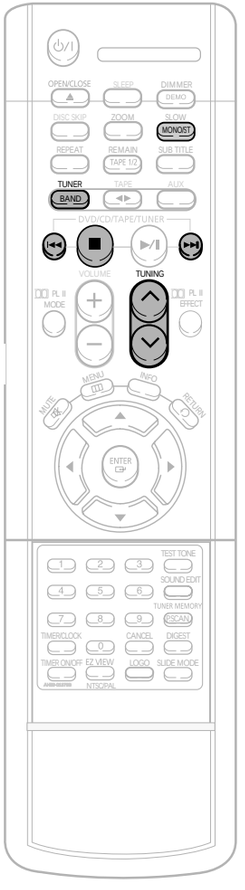
- The selection toggles back and forth between "FM → MW →(SW1,2)" each time the **TUNER(BAND)** button is pressed.

2 **Tune in to the desired station.**

Automatic Tuning 1 Press ⏮ ⏭ button to select the preset station.

Automatic Tuning 2 Press and hold TUNING button to automatically search the band.

Manual Tuning Briefly press TUNING button to increase or decrease the frequency incrementally.



Main Unit

1 Press the **TUNER/BAND** button to select the desired band (FM, MW(SW1,2)).

2 Select a broadcast station.

Automatic Tuning 1 Press the **STOP** (■) button to select PRESET and then press ⏮ ⏭ button or turn Multi Jog Knob to select the preset station.

Automatic Tuning 2 Press the **STOP** (■) button to select "AUTO" and then press ⏮ ⏭ button or turn Multi-Jog Knob to automatically search the band.

Manual Tuning Press **STOP** (■) to select MANUAL and then briefly press ⏮ ⏭ or turn Multi Jog Knob to tune in to a lower or higher frequency.

Press **MONO/ST** button to listen in Mono/Stereo.
(This applies only when listening to an FM station.)

- Each time the button is pressed, the sound switches between "STEREO" and "MONO".
- In a poor reception area, select MONO for a clear, interference-free broadcast.

Presetting Stations

You can store up to:

- 15 FM stations
- 5 MW stations or 15 FM stations 15AM stations
- 5 SW1 stations
- 5 SW2 stations

Example: Presetting FM 89.1 in the memory

1 Press the **TUNER(BAND)** button and select the FM band.

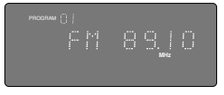
- Each time the button is pressed, the band switches between "FM → MW →(SW1,2)".

2 Press TUNING to select "89.10".

- Refer to Step 2 on page 41 to automatically or manually tune in to a station.

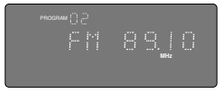
3 Press the **TUNER MEMORY** button.

- "PROGRAM" flashes in the display.



4 Press ⏮ ⏭ to select preset number.

- You can select between 1 and 15.



5 Press the **TUNER MEMORY** button.

- Press the **TUNER MEMORY** button before 'PROGRAM' disappears from the display.
- 'PROGRAM' disappears from the display and the station is stored in memory.

6 To preset another station, repeat steps 2 to 5.

Note

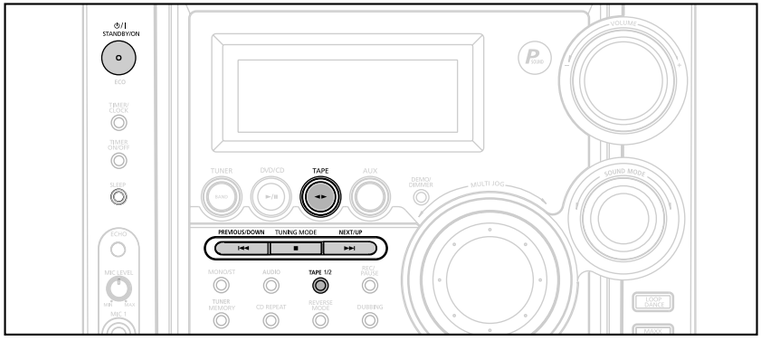
- When listening AM/SW , DPL II (Dolby Pro Logic II) button does not work.

RADIO OPERATION

To tune in to a preset station, press TUNING on the remote control to select a channel.

Listening to a Cassette

Always treat your cassettes with care; refer, if necessary, to the section entitled "Precautions When Using Audio Cassettes" on page 70.



1 Switch the system on by pressing **STANDBY ON**.

2 Press **TAPE** on the player to select the Tape function.

3 Press the **PUSH EJECT** (⏏) of the cassette deck to open the cassette door and insert a cassette.

- Insert a cassette with the recording/playback side facing the cassette holder, and then push the cassette door shut.

4 Press the ◄► button. The cassette starts playing.

- Side A : Tape (◄►) button once.
- Side B : Tape (◄►) button twice

Press Tape 1/2 button to select the cassette to be played.

5 Press the ⏮, ⏭ button if necessary.

- Rewind the cassette ⏮/ DOWN button.
- Fast-forward the cassette UP / ⏭ button.

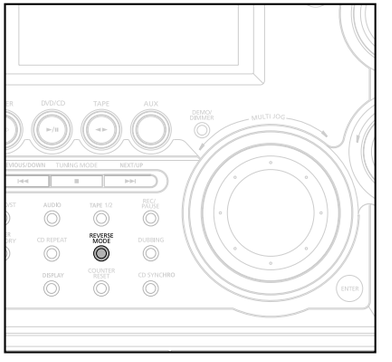
6 When you have finished playback, press **STOP** button.

Selecting the Cassette Playback Mode

Your mini component system has three cassette playback modes which enable you to listen to both sides of a cassette automatically. .

Press **REVERSE MODE** until the appropriate symbol is displayed.

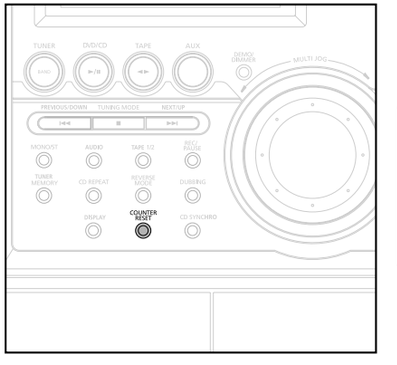
- ⇄ : One side of the selected cassette and then stops.
- ⇉ : One side of the cassette.
  The other side of the cassette and then stops.
- ⇆ : Both sides of the cassette indefinitely until you press stop.



Tape Counter

When playing a cassette in one of the cassette decks, a counter is displayed to enable you to take note of the counter value at the start of each track to start playback at the beginning of the track to which you wish to listen.

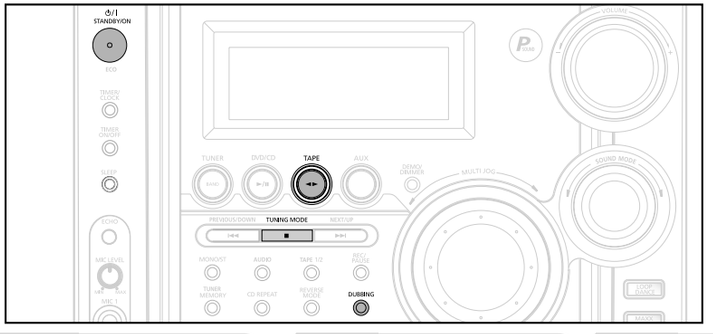
- Before starting to record a cassette for which you wish to take note of the counter values at the beginning of each track, reset the counter by pressing **COUNTER RESET** .
- Each cassette deck has a separate counter.



Coping a Cassette(Dubbing)

You can copy a cassette from Tape 1 to Tape 2.

- Normal speed dubbing in selecting Tape function mode.
- You do not need to adjust the volume, as it has no effect on the recording.
- Take care not to insert the tape to be copied in Tape 2, as it will be erased when you start recording.



1 Switch the system on by pressing **STANDBY/ON**.

2 Insert a blank cassette in **Tape 2**.

3 Insert the tape to be copied in **Tape 1**.

4 Press **DUBBING** button to copy a cassette.

The appropriate indications are displayed and the cassette in Tape 1 is copied to the cassette in Tape 2.

5 Press **STOP** button.

Note

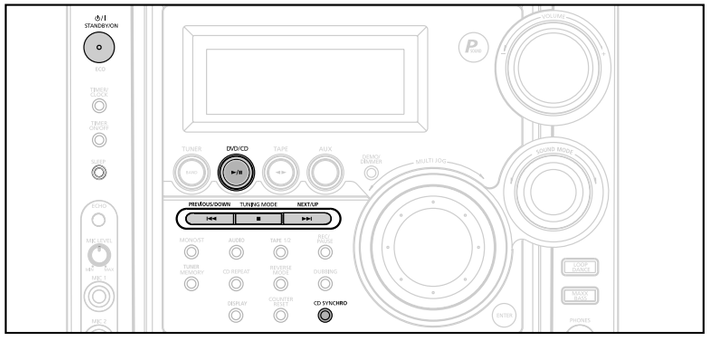
- In Recoding,DPL II doesn't work.

Recording a Compact Disc

You can record a compact disc on a cassette in two different ways:

Synchronised recording

This feature enables you to synchronize the start of the recording with the start of the disc or track of your choice only on Audio CD.



1 Switch the system on by pressing **STANDBY/ON**.

2 Insert a blank cassette in Tape 2.

- Press the **PUSH/EJECT** button (⏏) to open the cassette door, insert a cassette, and then close the cassette door.
- Insert the cassette with the safety tabs.

3 Load a compact disc.

- Press the **OPEN/CLOSE** button (⏏) to open the CD door.
- Insert a CD and press the **OPEN/CLOSE** button (⏏) to close the CD door.

4 Press the **DVD/CD** (▶/II) button.

- Use the CD selection (I◀◀, ▶▶I) buttons to select the desired song.

5 Press **CD SYNCHRO** button.

- When stopped, press the button to start the recording from the first piece of music.
- Press and hold **CD SYNCHRO** button during the playback of CD to start the recording from the first part of the music being played.

6 To stop recording, press ■ button.

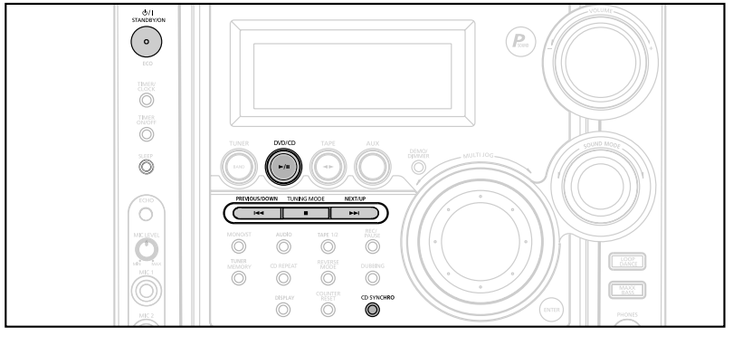
Note

- You can use **CD/SYNCHRO** button only in CD Playback Mode.
- In Recoding,DPL II doesn't work.

TAPE DECK

Direct recording

The direct recording mode enables you to start recording with any track on the compact disc.



1 Switch the system on by pressing **STANDBY/ON**.

2 Insert a blank cassette in Tape 2.

- Press the **PUSH/EJECT** button (⏏) to open the cassette door, insert a cassette, and then close the cassette door.
- Insert the cassette with the safety tabs.

3 Load a compact disc.

- Press the **OPEN/CLOSE** button (⏏) to open the CD door.
- Insert a CD and press the **OPEN/CLOSE** button (⏏) to close the CD door.

4 Press the **DVD/CD** (►/II) button.

- Use the CD selection (I◄◄ ►►I) buttons to select the desired song.

5 Press **REC/ PAUSE** button.

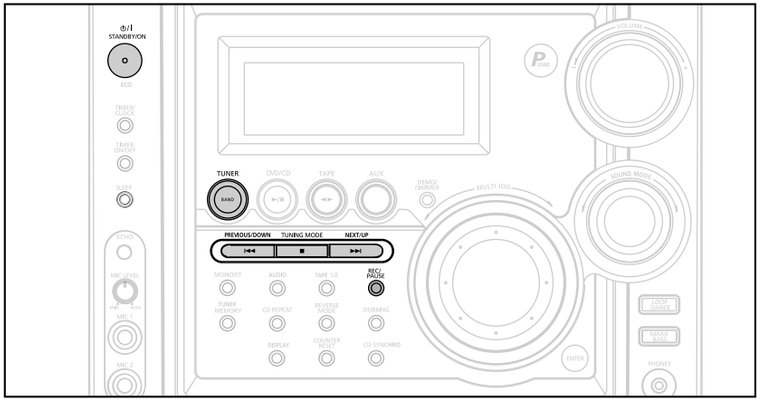
- Recording will begin.
- To stop recording, press ■ button.

Note

- The cassette tape you want to record on must have the safety tabs intact.
- In Recoding,DPL II doesn't work.

Recording a Radio Program

You can record a radio program of your choice.
You do not need to adjust the volume, as it has no effect on the recording.



1 Switch the system on by pressing **STANDBY/ON**.

2 Insert a blank cassette in Deck 2.

3 Select the TUNER function by pressing **TUNER/BAND**.

4 Select the radio station that you wish to record by pressing I◄◄/**DOWN** or **UP**/ ►►I button .

5 Press(**REC/PAUSE**) button.

- REC is displayed in red and recording starts.

6 To stop recording, press ■ button.

Note

- In Recoding,DPL II doesn't work.

MISCELLANEOUS

Timer Function

- The timer enables you to switch the system on or off at specific times.
- If you no longer want the system to be switched on or off automatically, you must cancel the timer.
- Before setting the timer, check that the current time is correct.
- For each step, you have a few seconds to set the required options. If you exceed this time, you must start again.

Example: You wish to wake up to music every morning.

1 Switch the system on by pressing **STANDBY/ON**.

2 Press **TIMER/CLOCK** until TIMER is displayed.

3 Press the **ENTER** button.

- ON TIME is displayed (instead of the equalizer symbols) for a few seconds, followed by any switch-on time already set; you can set the timer switch-on time.

4 Set the timer switch-on time.

a. Set the hour by pressing ◀ or ▶ button.
b. Press **ENTER** .
- The minutes flash.

c. Set the minutes by pressing ◀ or ▶ button.
d. Press **ENTER**.
- OFF TIME is displayed (instead of the equalizer symbols) for a few seconds, followed by any switch-off time already set; you can now set the timer switch-off time.

5 Set the timer switch-off time.

a. Set the hour by pressing ◀ or ▶ button.
b. Press **ENTER**.
- The minutes flash.

c. Set the minutes by pressing ◀ or ▶ button.
d. Press **ENTER**.
- VOL 10 is displayed, where 10 corresponds to the volume already set.

6 Press ◀ or ▶ button to adjust the volume level and press **ENTER**.

- The source to be selected is displayed.

7 Press ◀ or ▶ button to select the source to be played when the system switches on.

- TAPE (cassette) : Insert a cassette tape.
- TUNER (radio) : **a** Press **ENTER**. **b** Select a preset station by pressing ◀ or ▶.
- DVD/CD (compact disc) : Load on or more compact disc.

8 Press **ENTER** to confirm the timer.

9 Press **STANDBY/ON** to set the system to standby mode.

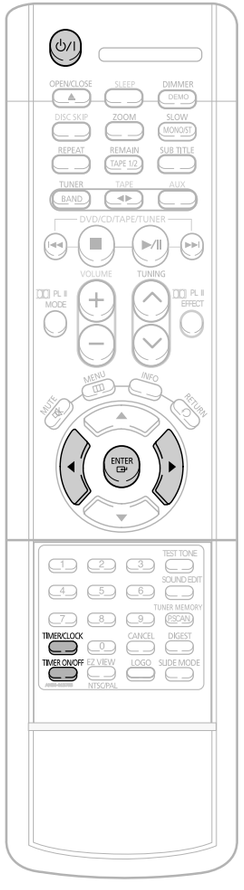
- ◷ is displayed to the top right of the time, indicating that the timer has been set.
- The system will switch on and off automatically at the required times.

Note

- If the timer switch on and off times are identical, the word ERROR is displayed.
- You can also use Multi Jog or I◀◀ ▶▶I button on the front panel to instead ◀ , ▶ button on the remote control in step 4,5,6,7.

Canceling the Timer

After having set the timer, it will start automatically as shown by the TIMER indication on the display. If you no longer wish to use the timer, you must cancel it.



To cancel the timer, press **TIMER ON/OFF** once.

- ◷ is no longer displayed.

To resume the timer, press **TIMER ON/OFF** again.

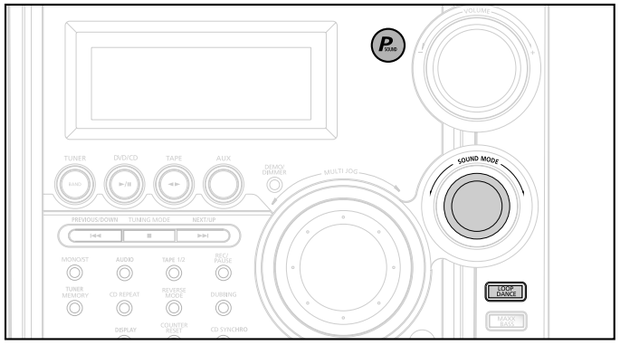
- ◷ is displayed again.

Note

- You can cancel the timer while the power is on or while the player is in standby.

MISCELLANEOUS

P.SOUND AND SOUND MODE Function



P.SOUND Function

Your mini-compact system is equipped with the function of Power Sound.
The function of Power Sound amplifies bass and improves high key or bass twice as much for you to appreciate powerful real sound.

Press the **P.SOUND** button on the front panel.

Result: Press **P.SOUND** button on the front panel, "**P.SOUND,OFF**" is displayed.
To cancel this function, press **P.SOUND** button again .

Selecting SOUND MODE

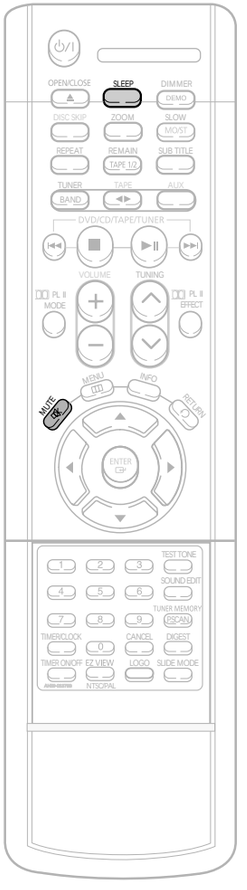
Your mini-compact system is equipped with a preset equalizer that allows you to choose the most appropriate balance between treble and bass frequencies, according to the type of music you are listening to.

Turn **SOUND MODE** on the front panel or Press **SOUND MODE** on the remote control until the required option is selected.

To obtain a...	Select...
Normal balance (linear)	PASS
Balance suitable for pop music	POP
Balance suitable for rock music	ROCK
Balance suitable for classic music	CLASSIC
Balance suitable for hall	HALL
Balance suitable for live	LIVE
Balance suitable for cinema	CINEMA

Press the LOOP DANCE button,the current DSP mode can be converted to Live mode and the blue LED can flash in certain mode.It makes the place living and shinning.

Sleep Timer Function / Mute Function



Sleep Timer Function

You can set the time that the DVD player will shut itself off.

Press **SLEEP** button.

- Each time the button is pressed, the selection changes as follows:
  90 MIN → 60 MIN → 45 MIN → 30 MIN → 15 MIN → OFF.

To confirm the sleep timer setting, press **SLEEP** button.

- The remaining time before the DVD player will shut itself off is displayed.
- Pressing the button again changes the sleep time from what you have set earlier.

To cancel the sleep timer, press **SLEEP** button until OFF appears on the display.

Mute Function

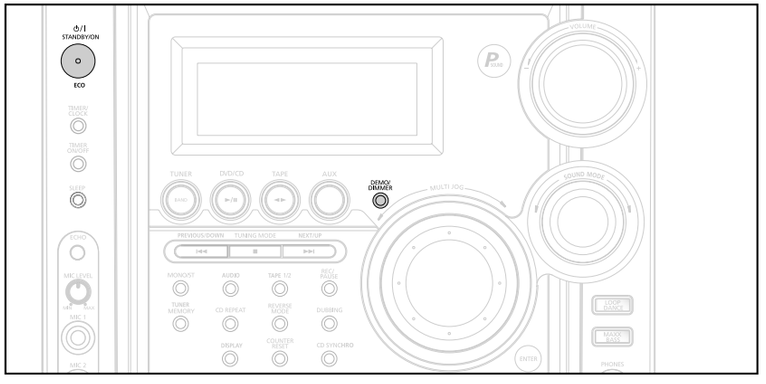
This is useful when answering a doorbell or telephone call.

Press **MUTE** button.

- 'MUTE' appears in the display.
- To turn off mute, press the button again.

MISCELLANEOUS

DEMO Function / DIMMER Function/ ECO Function



DEMO Function

You can view the various functions available on your system.

Press **DEMO/DIMMER** button.

- The various functions available are listed in turn on the display.
- All these functions are described in detail in this booklet. For instructions on how to use them, refer to the appropriate sections.

DIMMER Function

You can adjust the brightness of the display on the main unit so it won't interfere with your movie viewing.

Press **DEMO/DIMMER** button.

- Each time the button is press, the brightness changes as follows: DIMMER ON(Dim) → DIMMER OFF(Bright).

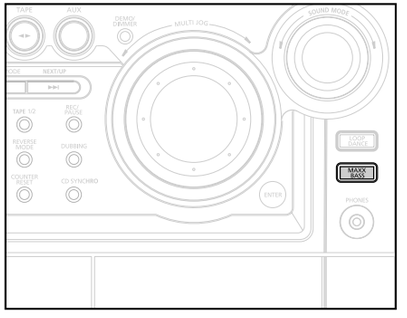
To cancel this function, press **DEMO/DIMMER** again.

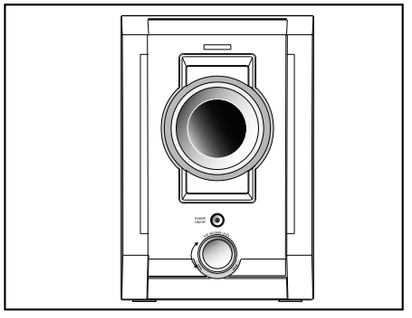
ECO Mode Function

You can save the power consumption while the unit is turned off(on standby).

- To activate the ECO mode,Press STANDBY/ON/ECO while the unit is turned off (on standby),The display illumination(including the display demonstration) disappears.
- While ECO mode is activated, the display demonstration is canceled temporarily.

MAXX BASS LEVEL Function/SUB WOOFER LEVEL Function





MAXX BASS Level Function

MAXX BASS utilizes the principle of the missing fundamental ,which creates the sensation of low frequencies by generating a carefully calculated series of harmonics designed to simulate the auditory experience caused by the missing fundamental pitch. These harmonics extend the virtual frequency response up to two-third or $1\frac{1}{2}$ octaves below the physical speaker cutoff frequency without perceived distortion or increased power consumption.MAXX BASS function stresses low tones providing thudding sound effects.

1 Press **MAXX BASS** button on the front panel to select:

→ "M-BASS 1→M-BASS 2 → M-BASS 3 → M-BASS 4 → OFF".

2 You can select the level of low tones you desire.

SUB Woofer Level Function

You can control the sub woofer level with the SUB WOOFER OUT SYSTEM CONTROL Jack.

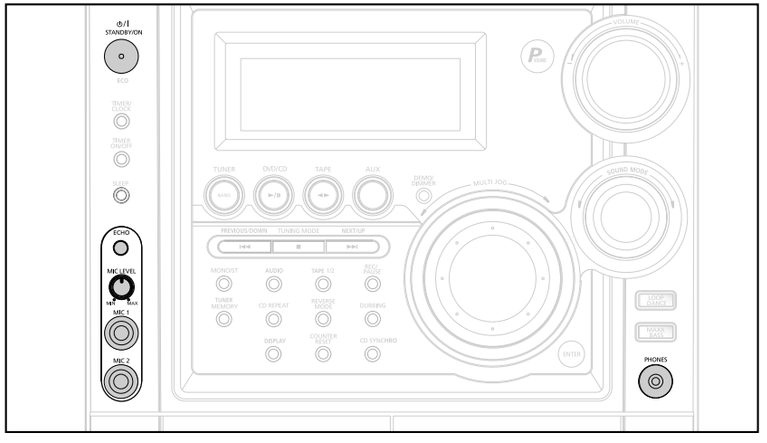
1 Press the **POWER ON/OFF** button to switch on the subwoofer .

2 Turn the **SUB WOOFER LEVEL** knob to adjust the sub woofer volume.

MISCELLANEOUS

Connecting Headphones/Microphone(option)

You can connect a set of headphones to your micro component system so that you can listen to music or radio programmers without disturbing other people in the room. The earphones must have a 3.5ø jack or an appropriate adapter.



Connect the headphones to the **PHONES** jack on the front panel.

- The loudspeakers are no longer used to output the sound.

Note

- Prolonged use of headphones at a high volume may damage your hearing.

Plug the microphone with a 6.3ø MIC jack into microphone terminal.

- Connect the Microphone.
- Turn the **MIC LEVEL** knob to adjust the **MIC** level.
- Press the **ECHO** button to select ECHO1,ECHO2, and ECHO OFF.
- During using the microphone ,you can press the **REC/PAUSE** button to record your favorite.

Cautions on Handling and Storing Discs

Small scratches on the disc may reduce sound and picture quality or cause breaks in playback. Be especially careful not to scratch discs when handling them.

Handling discs

Do not touch the playback side of the disc. Hold the disc by the edges so that fingerprints will not get on the surface.
Do not stick paper or tape on the disc.

Handling and Storing Discs

When you get fingerprints or dirt on the disc, clean it with a mild detergent diluted in water and wipe with a soft cloth.

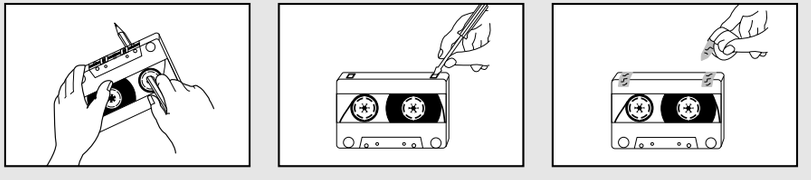
- When cleaning, wipe gently from the inside to the outside of the disc.

Note

- Condensation may form if warm air comes into contact with cold parts inside the player. When condensation forms inside the player, the player may not operate correctly. If this occurs, remove the disc and let the player stand for 1 or 2 hours with the power on.

Precautions When Using Audio Cassettes

- Check that the tape in the cassette is sufficiently taut.
- To prevent erasing a cassette that you wish to keep, remove the safety tab on the upper edge of the cassette. To record a cassette, where the tab has been broken, simply cover the opening with adhesive tape.
- When you have finished playing a cassette, always put it back in its case.
- Store your cassettes in a clean place, out of direct sunlight, where they will not be exposed to high temperatures.
- Avoid using 120-minute cassettes as they place unnecessary strain on the tape mechanism.



MISCELLANEOUS

Before Calling for Service

Refer to the chart below when this unit does not function properly. If the problem you are experiencing is not listed below or if the instruction below does not help, turn off the unit, disconnect the power cord, and contact the nearest authorized dealer or Samsung Electronics Service Center.

Symptom	Check/Remedy
Disc tray does not open.	• Is the power cord plugged securely into the outlet? • Turn off the power and then turn it back on.
Playback does not start.	• Check the region number of the DVD. DVD discs purchased from abroad may not be playable. • CD-ROMs and DVD-ROMs cannot be played on this DVD player. • Make sure that the rating level is correct.
The remote control does not work.	• Is the remote control being operated within its operation range of angle and distance? • Are the batteries exhausted?
Playback does not start immediately when the Play/Pause button is pressed.	• Are you using a deformed disc or a disc with scratches on the surface? • Wipe the disc clean.
Sound is not produced.	• No sound is heard during fast playback, slow playback, and step motion playback. • Are the speakers connected properly? Is the speaker setup correctly customized? • Is the disc severely damaged?
Picture does not appear, sound is not produced, or the disc tray opens 2 to 5 seconds later.	• Was the DVD player suddenly moved from a cold place to a warm one? When condensation forms inside the player, remove the disc and let the player stand for 1 or 2 hours with the power on. (You can use the player again after condensation disappears.)
• Disc is rotating but no picture is produced. **• Picture quality is poor and picture is shaking.**	• Is the TV power on? • Are the video cables connected properly? • Is the disc dirty or damaged? • A poorly manufactured disc may not be playable.

Symptom	Check/Remedy
Audio language and subtitles do not work.	• Audio language and subtitles will not work for DVDs not containing them. And depending on the disc, they may work differently.
Menu screen does not appear even when the menu function is selected.	• Are you using a disc that does not contain menus?
Aspect ratio cannot be changed.	• You can play 16:9 DVDs in 16:9 WIDE mode, 4:3 LETTER BOX mode, or 4:3 PAN SCAN mode, but 4:3 DVDs can be seen in 4:3 ratio only. Refer to the DVD disc jacket and then select the appropriate function.
The tape does not start playing	• The TAPE function has not been selected. • The cassette has not been inserted correctly. • The cassette player has not been closed. • The tape is either slack or broken.
The volume falls off **The cassette is not erased correctly** **There is excessive wow and flutter**	• The audio heads are dirty. • The rollers or drive capstans are dirty. • The tape is worn.
Can't receive radio broadcast.	• Is the antenna connected properly? • If the antenna's input signal is weak, install an external FM antenna in an area with good reception.
• The main unit is not working. (Example: The power goes out or strange noise is heard.) **• The DVD player is not working normally.**	• Turn off the power and hold the **P.Sound** button on the main unit for longer than 5 seconds. Using the RESET function will erase all stored settings. Do not use this unless necessary.
The password for rating level has been forgotten.	• While the player is in **"NO DISC"** mode, hold the main unit's **TUNING MODE/ ■** button for longer than 5 seconds. "INITIAL" appears on the display and all settings will return to the default values. • Press the POWER button. **Using the RESET function will erase all stored settings.** **Do not use this unless necessary.**

Notes on Discs

Disc Recording Format

CD-R Discs

- Depending on the disc recording device (CD-Recorder or PC) and the condition of the disc, some CD-R discs may not be playable.
- Use a 650MB/74 minute CD-R. Avoid CD-R media, as they may not be playable.
- If possible, do not use CD-RW (Rewritable) media, as they may not be playable.
- Only the CD-Rs that are properly "closed" can be fully played. If the session is closed but the disc is left open, you may not be able to fully play the disc.

CD-R MP3 Discs

- Only CD-R discs with MP3 files in ISO 9660 or Joliet format can be played.
- MP3 file names should be 8 characters or less in length and contain no blank spaces or special characters (. / = +).
- If the name of a file is in Korean, the name will be displayed on the TV screen in Korean and * will be shown in the display of the main unit.
- Use discs recorded with a compression/decompression data rate greater than 128Kbps.
- Only files with the ".mp3" and ".MP3" extensions can be played.
- Only a consecutively written Multisession disc can be played. If there is a blank segment in the Multisession disc, the disc can be played only up to the blank segment.
- If the disc is not closed, it will take longer to begin playback and not all of the recorded files may be played.
- For files encoded in Variable Bit Rate (VBR) format, i.e. files encoded in both low bit rate and high bit rate (e.g., 32Kbps ~ 320Kbps), the sound may skip during playback.
- If more than 500 tracks are recorded on a single CD, a maximum of 500 tracks can be played.
- If more than 300 folders are recorded on a single CD, a maximum of 300 folders can be played.

What is MP3?
MP3 is short for MPEG-1 Audio Layer 3 and MPEG is an acronym for Moving Pictures Experts Group. MP3 is a file format with compression ratio of 1:12 (128 Kbps*) That is, you can use MP3 format to record about 12 times the usual amount of data on a regular CD.

CD-R JPEG Discs

- Only files with the ".jpeg" and ".JPEG" extensions can be played.
- If the disc is not closed, it will take longer to start playing and not all of the recorded files may be played.
- Only CD-R discs with JPEG files in ISO 9660 or Joliet format can be played.
- JPEG file names should be 8 characters or less in length and contain no blank spaces or special characters (. / = +).
- Only a consecutively written multisession disc can be played. If there is a blank segment in the multisession disc, the disc can be played only up to the blank segment.
- A maximum of 9,999 images can be stored on a single CD.
- When playing a Kodak/Fuji Picture CD, only the JPEG files in the picture folder can be played.
- Picture discs other than Kodak/Fuji Picture CDs may take longer to start playing or may not play at all.

Notes on Terminology

ANGLE	Recorded onto some DVD discs are scenes which have been simultaneously shot from a number of different angles (the same scene is shot from the front, from the left , from the right , etc.). With such discs, the Angle button can be used to change the angle of view for specific scenes.
CHAPTER NUMBER	These numbers are recorded on DVD discs. A Title is subdivided into many sections, each of which is numbered, and specific parts of the video can be searched quickly using these numbers.
DVD	A high-density optical disc on which high-quality pictures and sound have been recorded by means of digital signals. Incorporating a new video compression technology (MPEG-2) and high-density recording technology, a DVD disc comprises two 0.6 mm thick discs bonded together.
PCM	An acronym for Pulse Code Modulation - another name for digital audio.
PBC (PLAYBACK CONTROL)	This is recorded on a video CD (version 2.0). Selected scenes or information can be chosen from the menu displayed on the TV monitor.
REGION NUMBER	Both the DVD player and DVD discs are encoded with a region number. If the region number on the DVD disc does not correspond to the region number of the DVD player, the player cannot play the disc.
SUBTITLES	Translated appearing at the bottom of the screen. A DVD disc can contain up to 32 subtitle languages.
TITLE NUMBER	These numbers are recorded on DVD discs. When a disc contains two or more movies, these movies are numbered as Title 1, Title 2, etc.
TRACK NUMBER	These numbers are assigned to the tracks which are recorded on video and audio CDs. They enable specific tracks to be located quickly.
VIDEO CD	Contains recordings of pictures and sound whose quality is roughly comparable to that of video tape. This player also supports video CDs with playback control (version 2.0).
DOLBY DIGITAL	5.1 (or 6) Channel Digital Surround sound reproduced from DVDs and LDs recorded as a digital signals (with DOLBY DIGITAL disc marking). With better sound quality, dynamic range, and directionality than traditional Dolby surround technology, you can enjoy dynamic, realistic sound.

Specifications

GENERAL	Weight	13Kg			
	Dimensions (W x H x D)	280 x 372 x 390mm			
	Operating Temperature Range	+5°C~+35°C			
	Operating Humidity Range	10%~75%			
FM TUNER	Usable Sensitivity	12dB			
	S/N Ratio	55dB			
	Distortion	0.8%			
AM TUNER	Usable Sensitivity	60dB			
	S/N Ratio	35dB			
	Distortion	2%			
VIDEO OUTPUT	Composite Video	1.0Vp-p(75Ω load)			
	S-Video	Luminance Signal : 1.0Vp-p(75Ω load)			
		Color Signal : 0.286Vp-p(75Ω load)			
	Component Video	Y:1.0Vp-p(75Ω load)			
		Pr:0.70Vp-p(75Ω load)			
		Pb:0.70Vp-p(75Ω load)			
AMPLIFIER	Front speaker output	110W x 2(6Ω)			
	Center speaker output	110W(6Ω)			
	Rear speaker output	110W x 2(6Ω)			
	Subwoofer speaker output	150W(3Ω)			
	Frequency range	20Hz~20kHz			
	S/N Ratio	70dB			
	Channel separation	55dB			
	Input sensitivity	(AUX)500mV			
SPEAKER	Speaker system	**5.1ch speaker system**			
		Front speaker	**Subwoofer speaker**	**Center speaker**	**Rear speaker**
	Impedance	6Ω x 2	3Ω	6Ω	6ΩX2
	Frequency range	150Hz~20kHz	30Hz~150Hz	150Hz~20KHz	150Hz~20KHz
	Output sound pressure level	85dB/W/M	85dB/W/M	86dB/W/M	86dB/W/M
	Rated input	110W	150W	110W	110W
	Maximum input	220W	300W	220W	220W
	Dimensions (W x H x D)	270 x 370 x 330 mm	250x 370 x 402 mm	372 x 160 x 235 mm	250 x 370 x 402 mm
	Weights	8.0 Kg		0.85 Kg	0.85 Kg

Memo